

Emerging Problems in Post-Secondary Education

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Discussion Paper Series




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EMERGING PROBLEMS
IN
POST-SECONDARY EDUCATION



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INTRODUCTION

The Ontario Economic Council sponsored a seminar on "Emerging Issues and Alternatives in Post-Secondary Education" at the Guild Inn in Scarborough on May 8-9, 1977. The purpose of the conference was to provide an opportunity for thirty-five invited participants with various perspectives to discuss some of the major issues emerging in the area of post-secondary education. The discussions were based upon theme papers which were distributed to seminar participants in advance of the seminar. These papers, with some amendments, are presented here with remarks of the discussant who led off the general discussion after the paper was presented. This introduction briefly summarizes some of the main points raised in each paper and, in addition, attempts to convey some indication of the direction of the discussion that followed.

Most of the discussions focused on university problems. Issues emerging in connection with the Colleges of Applied Arts and Technology (CAATs), particularly where they are unique, did not receive a full airing. The Council is considering the possibility of providing an opportunity to discuss questions related to the CAATs in the near future.

In his paper, "The University on the Road to 1984", Ian Macdonald first notes that the universities do not appear to have a position on the basic educational philosophy and purposes of a University in today's society. To clarify their role a dialogue needs to be initiated with the public. After noting ten major changes which he has seen between the universities of a decade ago and those of today he lays out four main issues which face today's university community. These are as follows:

- a) Will universities remain autonomous or become more and more dependent upon government,

- b) Should universities be concerned with their own self-interest or with relevance,
- c) Should the university system be elitist or egalitarian,
- d) Is the best strategy to achieve their objectives one of confrontation or one of cooperation.

It is Macdonald's conclusion that the universities are behaving as if the general policy of open access of the 1960's was still intended. This attitude is inconsistent with current government financing policy. He concludes that MCU, OCUA, and the universities must get together to arrive at basic policy agreement. Reducing the numbers of students is not necessarily the answer.

The general discussions which followed on Macdonald's paper focussed on the role of the university. There was a general consensus that a dividing line had to be drawn between the role of the universities and the role of the CAATs; both should not attempt to do the same job. In particular, it was emphasized that we do not have a post-secondary system in Ontario; we have two distinct systems. There was less agreement on what the particular role of each type of post-secondary institutions should be.

The second conference paper by Stefan Dupré¹ is presented as a two-part fable dealing with the question of tuition fees in Ontario. The first part of the fable deals with the history of the Great Kingdom during the last three decades. In particular it looks at the origin of the granting formula, the Ontario Student Award Program (OSAP), and fee increases.

The following points are pointed up as relevant to Ontario:

- a) Decisions concerning tuition fee levels are made at the summit of government,
- b) Students in general are sheltered from inflationary pressures,

- c) The determination of tuition fees is virtually unrelated to annual university expenditure requirements,
- d) Tuition fees are directly linked to the need for student assistance,
- e) The pattern of fees has ignored the issue of equity amongst students,
- f) The process of determining tuition fees by government has respected the letter of the law which gives university governing bodies the right to set fees,
- g) In practice the fee-setting powers of autonomous governing bodies have been limited to granting exemptions to selected groups of students from fees set by the government.

Professor Dupré then proceeds to outline his views of the basic issues in tuition fee determination. These are:

- a) Equity among students in different types of programs,
- b) Other issues of equity,
- c) Institutional fee autonomy.

Returning to his fable Professor Dupré notes how the Great Kingdom has dealt with these emerging issues through the well established technique of "Muddling Through".

Douglas Wright, one of the main architects of the formula granting procedure adopted in the Great Kingdom in the 1960's commented on Professor Dupré's paper. He focuses upon the fact that government decisions about universities may appear to be strange from the logic of economics but they should not be a surprise. The main point to be considered is that if the public does not recognize economic facts (regressivity, etc.), as a problem, then these elements are not political issues. In particular he notes that the public reaction to government

control over university grant income has been remarkably benign.

The discussion that followed emphasized the regressivity of the university system as it exists today. There was general agreement that there was no great public concern over this regressivity and it was unlikely that this attitude would change in the foreseeable future. There was also general agreement that the current student aid scheme was somewhat deficient. Moreover, students appeared not to be adequately informed about loan possibilities.

No general consensus emerged on the question of student fees. Although most participants rejected the concept of free tuition there was little general agreement about the appropriate level of fees or about the degree of autonomy which should be allowed to universities in setting fees.

D. F. Forster's paper on capital funding first reviews the history of university capital funding starting in the late 1950's. This is followed by a discussion of the capital freeze which started in 1972. He points out the inequities which resulted from the freeze, such as the non-completion of the age-quality program, underestimation of the need for space arising from both overly pessimistic enrolment projections and inadequate allowances from the growth of enrolments to steady-state conditions, and the termination of well-developed programs at inopportune times.

He next lays out the factors which he feels should be considered in capital funding policy and proposes a two part funding arrangement. The first would provide a "one-shot" infusion of money to restore balance and equity among the universities. The second would develop an appropriate system for on-going funding.

His paper concludes with a number of recommendations including a proposal that the government set aside, annually,

for continuing capital support at least one percent of the Ontario universities' capital inventory. He stresses, however, that the problem requiring immediate attention can only be dealt with by a "one-shot" allocation of money.

The comments of B. Wilson stress that capital funding is an instrument of policy. Governments tend to use it as a "swing" item. This is why it is difficult to define a "capital policy" per se. His comments concentrate on the "one shot" and continuing capital funding proposals made by Forster. He argues that the construction of a formula as detailed as suggested in Forster's paper would be too complicated to make it useful for administrative purposes. Instead he argues for a continuation of the existing, somewhat arbitrary, system.

Wilson raises the question of the ability of university administrations to make the tough decisions that would allow some capital expenditures to be made at the expense of salaries.

The ensuing general discussion of capital funding mainly addressed two central questions: the extent to which capital funds should be earmarked and the extent to which a formula should be used. With regard to the first, it was generally felt that earmarking should be restricted in order to maintain university autonomy.

Four general reasons were put forward supporting the creation of some type of formula. Briefly, these were:

- a) it would generate a sense of greater equity and at the same time would reduce political influence in the distributive system;
- b) it would encourage private donations for capital purposes since there would be less chance that such donations would be offset by reduced public funding;
- c) it would encourage financial planning by all concerned;
- d) universities would be encouraged to undertake bridge financing to smooth out any unevenness in the flow of construction and renovation work arising from variations in the annual flow of public funds.

As for most of the seminar, the discussion tended to focus on university problems. During the discussion on capital needs, however, the community college representatives made it quite clear that if and when capital becomes more readily available they will be most vociferous in demands for a greater share than they had received in the past. They felt that for too long Community Colleges have had to operate in marginal and ad hoc facilities.

The paper by A. N. Bourns probably generated the most intense discussion during the seminar. Bourns first reviews, the major reasons why universities indulge in research and scholarship, i.e.: a) these activities enrich teaching; b) there is an inextricable bond between graduate teaching and research; and c) the results of basic research provide "the foundation for social advance and technological inventions".

He next proposes that there are three different levels of research intensity within a university system. The first level is that required to provide sound undergraduate work. The second is needed for a good graduate program. The third level is that which goes beyond that necessary for education and manpower training objectives; and this third level provides the greatest problems from a funding point of view.

After analyzing the changing levels of sponsored research funding and the changing distribution of sponsored research funds among universities Dr. Bourns proposes a model for funding research costs. This model is quite specific and is tied to the three levels of research noted above. Particular emphasis is given to the third level and to applied research in particular.

The paper concludes with some observations on jurisdictional matters.

J. C. Parr in his comments first questions the assumption that research abets teaching. He believes this to be a matter of opinion rather than fact. With regard to the second level

of research as defined by Bourns, he calls into question the idea that such work meets the research needs of the nation.

Parr next turns to the question of the quality of research. He argues that identifiable criteria for assessment are somewhat lacking. Finally, he poses an alternative set of criteria for allocating the funds available for this research purpose.

The general discussion elicited two general conclusions. First, graduate students, particularly in the sciences, have in the past tended to be used as "infantrymen". Perhaps a better approach would be to allocate more funding to technicians and to place less emphasis on funding students.

Second, a more rational method of funding university research might be to reallocate funds in two general directions. First, new university junior appointments should receive a somewhat higher level of initial research support for a 4-5 year period to allow them time to establish their "professional credentials". Second, after this initial stage the bulk of funding should go to individuals with records of success (however defined). In other words, increasingly rigorous quality standards for funding should be applied as professors progress through the ranks.

It is apparent from this brief summary that no final solutions to the problems of post-secondary education were produced at the seminar. However, we hope that the publication of these papers will stimulate discussion of alternatives in the coming years.

THE UNIVERSITY ON THE ROAD TO 1984

by

H. Ian Macdonald

York University

I have been presented with the task of discussing "financial issues and alternatives facing post-secondary education in Ontario". I spent a long time contemplating that subject and concluded that it represented only one of twin topics. There is a parallel with the relationship of general government policy to budgetary policy. The budget should be an instrument designed to serve and to meet the basic policy objectives. On the other hand, basic policy objectives will be moderated and in some circumstances considerably shaped by the financial prospects. And so it is in the subject we are now discussing, with one important degree of difference. I still believe that we are fundamentally lacking a position on the basic educational philosophy and purposes of universities in today's society. The importance of being in a position to respond firmly and positively to the public is impressed upon us every day. As recently as this past week, Statistics Canada forecast a glut of university graduates that could last fifteen years. We should not only be in a position to debate that gloomy outlook, but to suggest how the economy can be transformed to avoid it.

I think it appropriate, therefore, to spend more time considering questions of the aims and objectives of the university and the dilemmas faced by it in modern society. I am not suggesting that the financing or financial alternatives will take care of themselves, but rather, we can expect to have a better impact on financial prospects if we first have a clearer view of the goals and directions which we are pursuing and the contribution which we can make to economic and social progress. Moreover, as far as this seminar is concerned, the four papers which have been prepared have provided us with a thorough survey of the financial territory.

Although there is an on-going generalized philosophical discussion about education, I believe we have been deficient in purposeful and fundamental consideration and debate about the nature of the university today. I recall that, in my first year

as President of York after an absence of ten years from the university world, I felt really discouraged only on one day, and that was after returning from a national meeting of university presidents and realizing that I had heard the word "education" used only once during the whole day. Presumably, even manufacturers of computers give some thought from time to time to the nature and character of their industry. For that reason, and because of my own experience in government, I concluded that we required a fundamental review of the university on the national scale and as soon as possible.

As many of you here know, the Association of Universities and Colleges of Canada collaborated with the Royal Society of Canada a year ago this month to produce a Symposium on The University of the Future which was held in Ottawa. Although I was chairman of the organizing committee for that conference, I readily confess that it merely scratched the surface. What was missing was the effective dialogue between the university and the public, between the source of the university product and the ultimate user. Undaunted by the experience of last May, I suggested to the A.U.C.C. that we should plan a national conference, more on the model of the 1956 meeting of the old National Conference of Colleges and Universities which had a considerable impact at that time on the shape and direction of university affairs to come. However, it was essential to ensure that such a conference produce effective dialogue between the university and the public, and that we came away with some solutions rather than simply having agreed upon the problems.

Consequently, we have done some survey work about the basic questions relating to the university in the minds of a variety of organized groups across the country, and we are about to appoint a panel of volunteer consultants who will hold further discussions with representatives of their professional, business, labour, or other constituencies. We will then bring them together for a meeting in the autumn with the purpose of identifying the

issues for discussion. In the following months, we will suggest to our universities and to representatives of business, labour, media and the public generally that positions and views should be prepared for discussion at the national conference in late winter or early spring 1978. After that process, I would hope that a national university policy might begin to emerge.

Meanwhile, I believe a number of issues concerning the interface between the university and the public must be addressed. I speak to you today as one who spent ten years as a renegade in the public service, but returned relatively recently to his first love. I often contemplate the interesting difference in my two earlier careers. As an academic interested in public policy, I had the freedom to speak but not the access to the facts. Then, as a civil servant, I had the access to the facts but not the freedom to speak. I have often thought that, if those two states could be wedded, public policy would indeed be the beneficiary.

On the other hand, I have also wondered how much difference there really is between the university and government as far as the politics of human relations is concerned. When I was considering the move to York, each of the individuals who were deemed possible candidates for the Presidency were invited to spend a few days on the campus and to meet with a variety of faculty, staff and students. In some instances, this took the form of an open meeting, where any question on any subject could be raised. At the first of these meetings the discussion began with a senior professor looking me squarely in the eye and saying: "I wonder why someone who has been a pillar in the corridors of power at Queen's Park for so long, with unlimited power, resources and money, would want to take a position with no power, no resources and no money." I must confess that the only reply I could muster, while contemplating the deeper meaning of the question, was that I had been on the fringes of politics for so long that I felt it was time I turned "pro".

Yet I also recall that, shortly after joining government service, someone who is a politician as well as an active person in the life of universities asked me what I thought the difference between government and the university to be. To him I replied that, in government, more of the intrigue took place in the open.

Returning to university after an absence of ten years, I would conclude that, in all that matters, the roles of the professor and university administrator seem to me essentially what they always have been. The important functions of the university - teaching, scholarship, and research - remain intact and we should rejoice in the fact that the university, as an institution, has survived for 800 years.

However the external environment has changed and is changing radically, and it is the external environment of the university that I wish mainly to discuss tonight. Before doing so, let me note in passing some of the changes in the formal apparatus of the university - the infrastructure of academic administration as opposed to the main functions of the university - which were apparent to me upon my return.

The University: Before and After

I would like to compare the changes in the internal environment by illustrating ten basic points of difference between the world I left in 1965, and the one to which I returned in 1974.

1. When I was at the University of Toronto, there was no formal Tenure and Promotion process; the elders, if not the Head, hired and fired. It is worth noting that the title Head was generally used as opposed to Chairman of the Department. Anyone who may have known the late Arthur Woodhouse and his manner of operation as Chairman of the Department of English, in University College, at the University of Toronto, would know

whereof I speak. In contrast, when I came to York I could not believe the complicated Tenure and Promotion process and the immense degree of academic time devoted to it. Each system has its strengths and weaknesses to be sure. The important question is what is the best system, while minimizing the drain on academic time.

2. Administrators mainly were drawn from the ranks of senior academics - and often earned ulcers or heart attacks as a reward for their service. Now it seems to be assumed that administration requires no deep experience in the academic world, although I must say that it is now possible for those more suited to become involved. On the other hand, early involvement is often at the price of academic career progress.
3. Sabbaticals were rare and relatively casual. For example, the former head of my department can claim that he never had a sabbatical in fifty years of university teaching. Now, increasingly, sabbaticals and other "conditions of employment" have been formalized and in many cases carried over into the terms of collective agreements.
4. It was customary for members of the faculty to work up slowly to the acquisition of graduate courses, which were looked upon as an academic distinction, and could be created according to the interests of the instructor rather than the curriculum of the department. This practice appears to have become common at the undergraduate level as well as at the graduate level.
5. There was a fairly even age distribution in the faculty, whereas universities now demonstrate a considerable lumping of faculty in the early middle years. For example, at York University the average age of the

faculty is 38 and we expect to have only 25 retirements over the next ten years out of a faculty of 1000. As a result, there is little scope for new, young scholars to enter. At the same time, it is not only difficult to find places for "new blood", but there is a problem that the system will be dominated by "old (and perhaps tired) blood".

6. In the earlier period, little attention was paid in the university to the place of origin of faculty members. Now, protectionism has arrived in the guise of nationalism and much more concern is devoted to the question of place of origin as a corollary to the problem of limited places.
7. Committees tended to be formed casually, grudgingly and were disbanded as quickly as possible. Committees and formal structures have now become institutionalized and represent an increasingly large drain on the time of the academic community.
8. Somehow, without too much questioning, we assumed funds would come from somewhere to keep us on a steady, even keel. In contrast everyone today is a self-styled expert on university budgeting, at least in the affirmative direction if not on the denial side.
9. Generally, we thought we were fortunate to be paid for something we really enjoyed doing - and the fact that I started at \$3500 (\$500 less than my father was earning after 40 years of work) seemed more significant to me than having accumulated \$3000 in debts before I began. Now, partly as a result of the bias toward younger faculty, the concern of academic people about economic questions is much more prominent and plays a much larger part in the whole policy of the university, with economic

conditions more dominant themes in university politics.

10. We thought that we should keep our distance from the so-called "real world" and people who did not were held in suspicion. Professors today are much more involved in public life and public policy, and in a much greater variety of realms.

The External World

Notwithstanding these major changes within the body and structure of the university, the greater changes are to be found in the world around us. In the 1960's, universities entered into the marketplace on a grand scale and, of course, the marketplace is an atavistic place to be. Live by the sword, die by the sword; feed on the marketplace, starve in the marketplace!

In addition, we must now deal with governments on a scale for which we were not adequately prepared. But more importantly, we must convince the general public about our importance and relevance which we are ill-suited to do until we have settled some basic questions for ourselves. The issues before us, I believe, are the following:

1. autonomy or dependence;
2. self-interest or relevance;
3. elitism or egalitarianism;
4. confrontation or cooperation.

Let me now deal with each of these in turn.

In every decision which bears on the broad policy of the university, a question should be asked about whether or not the university system is destined to have more government interference in its operation. Although one should have no illusions that, in a publicly funded university system, governments have

no role in the system, it is nevertheless fundamentally important for universities to retain and enhance in every possible way whatever degree of self-determination or autonomy is available to them. In most decisions taken about universities, one should ask whether or not these decisions will contribute to this end. Let me illustrate by citing two relatively recent examples. First, how long can universities go on incurring deficits? There is a point of view held by some which contends that the universities should not worry about this, but should go on incurring deficits because eventually the government will bail them out. But surely it is inconceivable, if all the universities in Ontario, for example, were to incur increasingly large deficits, that at some point the Government would not feel obliged to introduce some form of trustee arrangement, and play a direct role in the academic decision-making of the university.

Whether we like it or not, our universities today are essentially dependent upon the public purse and what is perhaps truly remarkable is the extent to which the governments have been willing to stand apart from the internal operations of the universities rather than the extent to which they have interfered.

Second, what will the consequences be of the increasing movement toward unionization in universities? As far as I am concerned, collective bargaining is a hard-earned right in Canadian society and, indeed, is a basic right of any group of people. Consequently, faculties themselves must decide on this question. But it is imperative that there be every opportunity for the faculty to debate the issue, to understand the implications, and to consider the potential advantages and disadvantages and the ultimate results.

The process of unionization itself can be a complicated and painful procedure. When one tries to apply a statute such as the Ontario Labour Relations Act, which was born in the copper mines and on the assembly lines, to a culture such as that in the university, which has a highly decentralized form of management,

the institution experiences cultural shock. Our own recent experience at York University resulted in a court case over the issue of the paramountcy of the York University Act as opposed to the Ontario Labour Relations Act. The result was to deflect debate from within the university into the courts which is, in my opinion, not the forum best suited for debating the nature of collegiality, management responsibility, and organization of the university. Ultimately the autonomy which we wish to preserve is the traditional freedom of inquiry and the traditional sense of academic freedom. I believe that the real threat is not so much the explicit prospect of government interference as it is the draining away of time, energy and activity into dealing with the complicated statutory process and consequent legal obligations. Our autonomy may not be threatened, but the time to enjoy it is. This, I suggest, is a serious matter deserving the consideration of all university people. In my own university, the faculty has unionized. Now, we are concentrating our efforts on preserving the best of the university tradition of collegiality within the constraints of the external statute. It would be ironical if, at a time when the industrial world is seeking greater co-determination by labour and management, we who had never required the terms in our own organization should embrace them as inevitable within the university.

The second principal issue is the one of whether the university should be guided by self-interest or relevance. Should the universities be free to do only those things which they determine to be in the interest of the universities, or should the universities try somehow to become more relevant to the needs of society? I do not believe that these matters are necessarily in conflict. As the result of a paralyzing snowstorm, I spent last January 10 unexpectedly at home along with the majority of Torontonians. As one thought of being imprisoned by the elements, it was easy to make the superficial assumption that universities were really a luxury in the face of food, shelter and other matters of human survival. However, that is a shallow observation, because it is not very difficult

to construct a catalogue of the important contributions of universities to civilization, to society and to the public interest. I do not believe that we have done a good job or that the media has assisted us in doing a good job of explaining this to the public. The history of the world is a history of ideas and universities have been, although by no means a monopolist, at least an important agent of developing and preserving ideas.

Unfortunately, the tendency in some educational circles to develop a completely new vocabulary has not eased our task of explaining our special role and contribution to the public. I refer to the recent account of a high school student who took a message home to his father from the principal about a special meeting on a proposed educational program. It read:

"Our school's cross-graded, multi-ethnic, individualized learning program is designed to enhance the concept of an open-ended learning program with emphasis on a continuum of multi-ethnic, academically enriched learning, using the identified intellectually gifted child as the agent or director of his own learning.

Major emphasis is on cross-graded, multi-ethnic learning with the main objective being to learn respect for the uniqueness of a person."

The father wrote back:

"I have a college degree, speak two foreign languages and four Indian dialects, have been to a number of country fairs and three goat ropings, but I haven't the faintest idea what the hell you are talking about. Do you?"

The problem is that relevance cannot always be tested in the short term. Relevance is a long-term matter and the

dividends or pay-off from university activity may be found only in the future. By the same token, many notable experiments in effective manpower planning have failed because the conditions of the marketplace have changed drastically by the time one university class has passed through its complete cycle.

The third area which is a difficult one to unravel is the question of elitism or egalitarianism, both in our society and in our universities. Does it really profit as much to be equally incompetent? The late Sydney Smith, when President of the University of Toronto, often remarked that: "We are all equal under the law but we are not all equal under the skull".

I would distinguish between equality of opportunity as far as reaching university is concerned and the standards which the university should then insist upon. I hope that we will strive to be egalitarian in terms of broadening the accessibility of the university to the widest spectrum of society and enabling as many as possible to enjoy the educational opportunities necessary to qualify them for university admission. By the same token, I hope we will continue to insist on the highest possible standards within the university. Reconciling these two objectives will be an increasingly difficult area for the politicians. Every indication suggests an implicit movement in the direction of reduced enrolment in universities. On the other hand, I do not think we can hold our breath waiting for governments to announce this as a matter of policy at a time when the public already feels that too much money is being spent on universities. On the other hand, if the universities are left to carry out this responsibility alone, they may find themselves carrying an unwarranted share of the blame and thereby reducing their public reputation once again.

This central problem in university/government relations leads me to the final question, and that is the question of co-operation or confrontation. In recent years, confrontation became a popular word in our vocabulary. I would like to ask

whether it has accomplished anything. What we surely require is a much greater measure of cooperation than ever before between governments and universities, and more frankness and candour in understanding each other's problems and responsibilities. I believe that we will move in this direction, but as far as I am concerned, it will come none too soon.

In all that has been said here, nothing has been said directly about the federal government: this is one of the difficult questions of public policy. We all understand two things: ultimately universities are a national resource and, therefore, the federal government should bear some public responsibility for their welfare. We all also understand our constitution and the ultimate responsibilities of the provincial governments. The federal government must be persuaded to do more and to take a larger role. Recently, the Fiscal Arrangements Act, whereby the federal financial resources for the purposes of higher education are transferred through the tax mechanism to the provincial treasuries, came up again for its periodic review. Traditionally, those discussions have been arithmetic exercises about the size of the funds and manner of handling them. Many of us had hoped that things would be different this time and that the universities would have a strong positive position on their educational needs to place before the federal government and the provinces, while the governments would be guided by such an input. Unfortunately, neither happened.

However, in the course of the past ten years, a subtle and important shift has taken place in the character of universities - nationally and internationally - as a result of changes in the inter-governmental process in our Confederation. I have long been an exponent of a greater measure of decentralization in our federation and the bringing of government and their bureaucracies closer to the people. I am greatly amused by the cast of characters that now rush to embrace that position as a result of November 15 in Quebec when I think of the strenuous debates with those same individuals over the past ten years.

However, in one area, I have always felt a sense of unease - university affairs. As the very name implies, the university belongs to the universe - there can be no barriers to the exchange of ideas, nor to the exchange of university people. And our universities had established a glorious tradition for openness and mobility throughout the world. The amendments to the Fiscal Arrangements Act in 1967 had the effect of placing the universities much more directly under the provincial governments. The recent changes agreed upon last December were overwhelmed by the trumpeting of Levesque's arrival in and departure from Ottawa, but they greatly reduce the financial assurance of the universities and increase the provincial governments' capacity to shift resources to fields other than the universities.

The result - although I cannot prove it - has been to make the universities, at least in administrative outlook, much more provincial in their orientation and, in turn, less national and international. I do not believe students think as readily of studying in another province and certainly we are making it increasingly difficult for foreign students to study in Canada. Parochialism has never been a prescription for greatness.

There is one final change I would comment on briefly. Twenty years ago, universities were in a position to speak with a direct voice to the ministers and to the political men and women who ultimately were responsible for decisions about higher education. Since then strong and powerful bureaucracies dealing with university and educational matters have been built up in both the provincial and federal governments. It is not only strong university presidents or influential faculty groups who make their presence known to politicians, but there also are very strong counter-bureaucracies, as it were, that are also advising government and with which universities must deal and reckon. These large bureaucracies often have resources which the universities simply cannot muster. And so, we must learn to use their resources to support our cause. I have suggested to my colleagues that we study the manner in which the agricultural

community manages the departments of Agriculture in governments, and learn some lessons. The future of the world may depend as much on the university as on agrarian reform. We should also remember that Cabinet Ministers like "success stories" to place before their colleagues. Let us, in the universities, provide some for them.

Fact and Fantasy

In what I have said, certain tough policy issues are implicit and they revolve about the basic and abiding questions of who should go to university, in what numbers, for how long, paid for by whom, at what standard, for general education or occupational preparation, in the traditional sense of the academy or as a process of mass education, and to what extent at the graduate or undergraduate level. And there are many others. These are the arenas in which the general considerations I have been discussing will be resolved. Above all, we must have some policy on this hidden agenda and on the so often unstated assumptions or unasked questions.

I believe, in fact, that we are behaving as if the general policy of open access of the 1960's was still intended. In that sense, the universities are attempting to practice a basic social policy that is inconsonant with the policy being funded by government. As I have suggested, this can only serve to exacerbate our relations with the public. I do not believe that the public today is basically anti-education, and all my meetings throughout the province in recent years has confirmed this impression. I do believe, however, that people are disappointed that we have not fulfilled the high hopes held out for education in the 1960's; they are also seeking to be assured that we are firmly in control of our own destiny. Therefore, if the universities are asked to cope with an impossible objective through inadequate resources, we will be seen as intransigent institutions that are not only being heavily funded by government, but not

meeting all of the public's demands upon us. This will serve to turn the public even more against the university and add further to our difficulties.

Therefore, it is urgent for the universities, the Ministry and OCUA together to sit down and reach some agreement on the basic issues of policy. Although I have been making this suggestion on every possible occasion and at every possible place over the past few years, I still do not despair of achieving such clarification of the basic issues of growth, enrolment and standards.

What would be most useful at the outset would be some agreed data. Recently, a study was undertaken by a faculty member in my own university which raised some hackles because it suggested that 60 per cent of the students at university today would not have been admitted ten years ago and, therefore, "quality" had greatly diminished. The fact is, however, that the fraction of students reaching Grade 13 is essentially unchanged between those entering Grade 9 in 1960, 1965 and 1970. Other data suggest that the fraction going on to university from Grade 13 increased somewhat, but not very much. Assuming then that the average intelligence remains quite constant, it follows that the "quality" of students entering university would not appear to have changed to any significant degree.

Such a question, however, is one that most of us find necessary to answer for ourselves. My own experience in classrooms in recent years is limited, but I can report for example that the fourth year students that I taught in a seminar in the Department of Political Science at York last year seemed to be very little different from the last fourth year class I had at the University of Toronto in 1965. On the other hand, they are a very different cross-section of students. Whereas I cannot give you comparable data on the earlier period, I can tell you that, of the students at York University today, only 20 per cent had fathers who went to university and only 8 per cent of their mothers went to

university. The composition is different and that is all to the good.

However, I have an additional basic concern about the proposition that we should, willy-nilly, reduce numbers in the university; it is the concern that we are putting the cart before the horse. I am not convinced that we have done everything possible to achieve equality of educational opportunity in this province; I am not convinced that the son or daughter of the assembly line worker in Oshawa, or the hard-rock miner in Timmins, or the marginal farmer in eastern Ontario has the same motivation or opportunity for university as many others in our society. It seems to me, therefore, that a conscious decision to reduce numbers could have the affect of discouraging many who are equipped to go to university but whose opportunities has not been well developed. To the extent that we make it possible for universities to accommodate people at later stages of their careers, there will be a second chance. I believe that this is not only socially desirable, but economically wise. It is expensive to take a mature person with responsibility and pass him through a university, but expensive only in the sense of short-term social costs rather than long-term social costs. Presumably it makes no sense at all to have people underemployed and in soul-destroying jobs over the long term if they can be deployed in economically more productive activity which also provides the added advantage of personal fulfillment.

In order to maintain the numbers of students with diminishing financial resources, the assumption is always made that quality must decline. I believe that assumption is made too readily. We all know that the ratio question per se is no more than an arithmetic axiom. The best teaching I ever had was at the University of Toronto in a class of 200; some of the worst was the University of Oxford on a one to one ratio. The real problem is the greater pressure on faculty members' time. However, there is another place where time can be purchased relatively cheaply and that is from the extraordinary number of hours spent on committees and

related activities. It always seemed to me that we could have been better administrators in universities if we let them administer; both sides of the street suffer from the present system.

In managing our way through this situation, I am not convinced about the validity of planning on a global scale at the provincial level and with a one-dimensional view which may be considered as a system approach but, in fact, fails to examine the differences among the components of the system, their particular needs, the enrolment, pressures upon them, or the sources and migration patterns which differentiate them each from the other, including the very real differences in social strata and alumni base. Single-dimensional global plans which are based solely on the establishment of a uniform system of financing may be a comfortable crutch in the short-term, but will succumb to their inherent weakness in failing to recognize the real requirements of the public. For example, one of the popular theories today is that some universities, such as York, which face excessive enrolment pressure, should not attempt to accommodate that demand. Rather, because there is under-capacity in the system in some of the other universities, the solution should be one of forced migration of potential students. I have had sufficient experience with regional economic planning in this province to know some of the difficulties in such an approach. In any event, we would want to know the prospects for success and the real subsidization costs in forced mobility. The result might simply be, once again, that many of the qualified will not go to university.

The real significance of the mass availability of part-time employment for many of those who want to attend university should not be overlooked. This is important to those drawn from the immediate hinterland and to those new Canadians or migrant Canadian families who have gravitated to the metropolitan areas of Ontario because of the greater opportunities perceived there.

Incidentally, this factor is also important in comparing students and student performance today with other periods or situations. Nearly 50 per cent of the students at York work up to 12 hours a week in order to maintain themselves at university. That is a very different picture from the general university of earlier years.

It is also true that the whole philosophy of regional development in the province is ripe for re-examination. The objective of the past few years was to decentralize economic activity to smaller communities, and this was an objective I supported and still do. In reality, however, changing transportation and energy costs may, in fact, serve to reinforce the growth of megalopolis and we may find ourselves planning for an unreal world.

To the extent that we indulge in more planning, the planning must be for a sensible lead-time. Lead-time is important if we are to consider variables other than simple population growth which affect participation. Planners who predicted enrolment through the 1960's appear to have done very well. Both population and participation rates increased and were only bounded by the space available which in turn was easily controllable. Fulfilling the plan was merely a matter of turning on the tap. Experience in the 1970's proved that participation was less predictable - participation in both secondary and post-secondary education leveled off and even dropped. University planners did not see this coming, and even today the identification of the causes is uncertain and speculative.

The difficulties in identification of trends was partly the fault of the universities. As evidence of this one might suggest: (a) competition between universities inhibited the exchange of information; (b) the kind of information reported to central agencies was of limited value and, perhaps, useless for planning. For example, the data was selected for accounting rather than for planning purposes, it tended to be biased to

serve the case acquiring operating and capital funding, and several institutions lacked the resources and capabilities to produce the information.

Now some progress has been made in developing better information and sharing it, but much more needs to be done. A continuing and authoritative research programme is required and this must be associated with more effective federal, provincial and regional/municipal manpower planning. Manpower planning to date seems to have failed miserably in forecasting society's needs. This, of course, is largely due to our lack of adequate socio-economic indicators.

While our national and provincial policies have been and are being modified and opposite effects may be generated, I do not believe our university planners have a grasp of all the current variables. I suggest that we may find economic and social changes coming which will increase participation, but that participation will go where there are programmes which appear to offer some opportunity for employment as well as a basis for a broader and more fruitful life in the future. We will need to know a great deal more about attitudes and expectations. We have a tendency to assume that we should be adjusting to some preordained economic pattern, whereas I believe that the attitudes and expectations of our people, particularly those who would go to university, as the most important consideration.

A story is told about a former student who came to visit his old Professor of Economics after fifteen years and happened to notice a copy of the current examination paper lying on the desk. He glanced over it and said to the professor: "You know that is very interesting. If I recall, those are exactly the same questions you asked us in our examination fifteen years ago." The professor said, "Oh, yes. I ask the same questions every year," and the former student asked, "Well, don't your students get wise to the system?" To which he replied,

"Of course, but it does not matter because in Economics we keep changing the answers!"

Both the questions and the answers are now changing very rapidly in matters of public policy and in the area of the relationship of universities and government. It is critically important that the universities retain a capacity to play a part in the asking of the questions and in providing the answers. There is a very great danger, in a mood of retrenchment, in a concern and anxiety about the future, and in a stance of reacting to body blows rather than taking the initiative, that three forces may overcome universities at once - the force of collectivism, the force of conservatism, and the force of protectionism. Universities should prepare themselves to counter them all. I believe that we can; I hope that we will.

THE DETERMINATION OF TUITION FEES

by

J. Stefan Dupré

University of Toronto

A FABLE: PART I

Once upon a time, there was a Great Kingdom called Ontario. After a long Depression and an almost equally lengthy War, the Great Kingdom entered an era of tremendous economic and population growth. For more than a decade, the playful inhabitants of the Kingdom not only prospered; they multiplied like rabbits. Their prosperity attracted large numbers of new inhabitants called immigrants, who in turn multiplied and contributed to prosperity.

A gracious Queen reigned over the Great Kingdom. But both because she lived in another land, and because of another thing called Constitutional Evolution, the Great Kingdom of Ontario was ruled by a Premier together with a group of Ministers selected by him to form a Government.

As the inhabitants of the Kingdom prospered and multiplied, Weighty Advisors warned the Premier and his Ministers that unprecedented numbers of boys and girls were about to become young men and women. It seemed that continued economic prosperity, to say nothing of the spiritual uplifting of the Kingdom, made it very important that as many of these young men and women as possible receive something called a Post-Secondary Education. There existed in the Kingdom a few institutions called Universities where wise men and women called Good Doctors taught the young how to be accountants or engineers or lawyers or psychiatrists, or simply educated them in the arts and sciences.

The Premier and his Ministers heeded their Weighty Advisors. They decreed that every Qualified Applicant should be able to find a place in Post-Secondary Education. They summoned the Good Doctors and told them: "Here is the key to the Treasury. Increase and multiply and fill the Kingdom." The number of Universities increased until they filled the Kingdom from Ottawa to Thunder Bay. And in all Universities, the number of Good

Doctors multiplied as the number of students multiplied. Actually the Kingdom had a shortage of Good Doctors so that many had to be imported from abroad. Later this worried the Premier and his Ministers but that is another story.

The number of Good Doctors multiplied just as the Government had decreed. So concerned were the Premier and his Ministers that there be a Post-Secondary Education for every qualified applicant that they created, alongside the Universities and the Good Doctors, an entirely new post-secondary system called the Colleges of Applied Arts and Technology. That too is another story because it was decreed that these colleges should be "instruments of provincial policy."

Although the Universities and the Good Doctors increased and multiplied while they held the key to the Treasury, they maintained by Law almost total independence from the Kingdom. This independence was called University Autonomy. The Law of the Realm provided each University with a Governing Body. Some Governing Bodies counted among their members a few Good Doctors and some students. All drew a majority of their members from those subjects of the Kingdom who were called Lay People, meaning people who were not currently engaged in teaching or studying at the University. It was thought that the Lay People would be useful in keeping each University independent, and would also lend to its autonomous decisions the character of something called Accountability. In this setting, the Law of the Realm clearly granted Autonomy to each University by vesting in each Governing Body "the government, conduct, management and control of the University and of its property, revenues, business and affairs thereof"⁽¹⁾ in exactly those words or words to that effect.

(1) See for example, An Act Respecting the University of Waterloo. S.O. 1959, C.140, S22 (1).

Even though the Premier and his Ministers had given away the key to the Treasury, they found it difficult to satisfy the ambitions of each and every Autonomous University. Good Doctors and Lay People were both very adept at applying something called Political Pressure on behalf of their institutions. Fortunately, the Weighty Advisors were able to devise an answer to this problem. They named the answer an Operating Grants Formula. Henceforth, each Autonomous University would receive a grant calculated on the basis of its Weighted Enrolment. The use of Weighted Enrolment was easily understandable, given the fact that it had been suggested by Weighty Advisors. Quite aside from this, it was thought that the precise Weight attached to students in any given Program was a reasonable proxy for the relative costs of educating the students in that Program.

The beauty of the Operating Grants Formula is that it fostered, with a few notable exceptions, an Arm's Length relationship between the Premier and his Ministers on the one hand, and the Good Doctors and Lay People on the other hand. This undoubtedly reduced Political Pressure and contributed to University Autonomy.

So that the Formula might indeed maintain an Arm's Length relationship between Government and the Universities, it was deemed most important that the Formula appear Fair and Equitable to all, or to as many as possible. It happens that Universities had three major sources of revenue. The first was Operating Grants from the Kingdom. The second was Tuition Fees from students. The third was Other Revenue, largely in the form of Grants for Sponsored Research or Gifts from Grateful Alumni and Friends.

It was decided to exclude Other Revenue from the Formula. This was done to encourage Grateful Alumni and Friends to give to the University of their choice and to avoid confusing Grants from Sponsored Research with Operating Grants from the Kingdom.

Some Universities did more Sponsored Research than others; some, especially the older ones, also enjoyed more Grateful Alumni and Friends than others. These universities were pleased that Other Revenue was excluded from the Formula. The remaining universities went along, although a few, particularly those that received little money for Sponsored Research and had few Alumni and Friends, Grateful or otherwise, grumbled from time to time that this was Unfair and Inequitable.

While the Formula, for better or worse, excluded Other Revenue, it did encompass both Operating Grants and Tuition Fees. This was accomplished through something called Basic Operating Income. For each University, Basic Operating Income was calculated by multiplying Weighted Enrolment by something called a Basic Income Unit Value. The Operating Grant for each University was the difference between Basic Operating Income and Formula Fee Revenue.

The Formula Fee was a fixed amount of money per student depending on the student's Program. The amount of Formula Fee for each Program was originally set as the median of the tuition fees actually charged by each University to the students in its various Programs. In the years that immediately followed, the Governing Bodies of Universities whose fees were below the Formula Fees used their Autonomy to increase their fees to the median. But universities did not choose to increase fees that were higher than the median, even though they could have kept the extra income. Of course, because the Universities held the key to the Treasury of the Kingdom, the annual growth in their Operating Grants was such that they did not really need additional revenue from higher tuition fees.

It came to pass that the Great Kingdom began to experience a Period of Financial Difficulty. The Premier and his Ministers took back the key to the Treasury. Henceforth, Universities would not necessarily receive what they thought they needed.

Instead, they would receive what the Government thought it could afford. After a while, this new practice was given a name of its own. It was called Global Funding.

What would come to be called Global Funding began with a smaller increase in Operating Grants than the Good Doctors wished to have. This was followed almost immediately by a \$100 increase in the tuition fees charged to students. This increase in tuition fees was a greater increase than the students wished to have. Indeed, Student Organizations in the Kingdom had become much more vocal than in the past. These organizations constantly opposed fee increases and expressed a strong preference for Free Education on Demand.

How did the \$100 fee increase come about? First it was approved by the Premier and his Ministers. Then one of the Ministers, the Treasurer of the Kingdom, was sent forth to announce the fee increase in his Budget Speech. "The Government believes it is inequitable for taxpayers to bear all of the cost increases," he said. "Rather, the students who benefit directly should bear a larger part of the costs of their post-secondary education." (2)

Because of University Autonomy, the Government could not increase fees all by itself. Only the Universities could actually levy and collect tuition fees. So what the Government did was to increase all the Formula Fees by an even \$100. It then "recommended" (3) that the Universities increase their actual fees by a corresponding amount. The revised Formula Fees were deducted from Basic Operating Income. The resulting saving to the Government in Operating Grants could only be recouped by the Universities if they charged higher tuition fees to students. All of them accordingly accepted the Government's recommendation

(2) 1972 Ontario Budget, p.29

(3) Ibid., pp 29-30

to increase their fees by the exact amount of \$100, although they were careful to refrain from saying that they were glad to accept this recommendation so as to avoid the Wrath of the Student Organizations, which was accordingly directed almost entirely at the Government.

Time passed and the Period of Financial Difficulty continued. It was very difficult for the Government to find grant money sufficient to enable the Universities "to offset inflationary trends, maintain or improve existing levels of service and accommodate predicted enrolment increases." Indeed, in the very year that the Government enunciated these as its objectives in Global Funding, it was disputed by a group of its own Weighty Advisors who claimed that what the Government had given was insufficient to meet these objectives. The government did not again enunciate such clear objectives.

In that same year, however, the Government enunciated something else even more clearly. The Operating Grants it announced were made on the explicit condition that "there will be no increase in tuition fees." In fact, the Universities had not increased their fees since the time the \$100 increase had been "recommended". The newly explicit condition was doubtless made for Greater Certainty, and clearly implied that any Governing Body that dared to increase tuition fees would be punished through a corresponding reduction in Operating Grants.

All the Universities grumbled about the inadequacy of their total revenue. A few complained that the Premier and his Ministers were interfering with the fee-setting prerogative of their Governing Bodies. None chose to challenge the Government, let alone the Student Organizations, by raising fees and daring the Premier and his Ministers to take away the money. All understood the situation exactly when, one year later, the Premier himself stated on Television that there would again be no increase in tuition fees.

The second time it was stated that there would be no increase in tuition fees, the Premier and his Ministers found enough grant money in the Treasury to satisfy their Weighty Advisors, if not the Universities. From year to year, the Weighty Advisors recognized the Period of Financial Difficulty and struggled to reduce the percentage increase entailed by their funding advice. Presently, however, the Government found itself unable to find all of the grant money required, and once again increased Formula Fees by \$100. This time the Premier and his Ministers selected the Minister of Colleges and Universities to make the announcement. "We have suggested that Universities increase their tuition fees" by this amount, he said. "We believe the increased costs faced by universities...should be borne in part by the students who use them and in part by the taxpayer."⁽⁴⁾

This time the fee increase was "suggested" rather than "recommended". But the chosen word was the only thing that differed and all the Universities complied by raising their actual fees exactly as they had the previous time. Then while some were still in the process of raising these fees, the Premier was reported to say that in the succeeding year there would be no increase in tuition fees.

Weighty Advisors, Good Doctors, Students, Lay People and other subjects of the Kingdom wondered at all these things. Some believed that one thing was Perfectly Clear. This was that the Premier liked to say that there would be no increase in tuition fees. Furthermore, when fee increases did take place, the Premier did not choose to announce them himself. Perhaps this was because he did not like Economic Barriers to Accessibility.

Under certain circumstances, tuition fees can be an Economic Barrier to Accessibility. This occurs when an

(4) Statement to the Legislature by the Minister of Colleges and Universities, November 25, 1976: P.1.

otherwise Qualified Applicant lacks something called Ability to Pay. The Government of the Kingdom had never wished this to happen and accordingly had devised the Ontario Student Assistance Program. OSAP was much more complicated than the Operating Grants Formula. What it tried to do, however, was to provide money to students who lacked Ability to Pay.

OSAP was very arbitrary. For example, it specified different levels of student contribution, whatever a student's actual earnings. OSAP also created different categories of student. Married students were placed in One Category. But this did not mean that single students were the Other Category. Instead there was a category of single students who were deemed Independent, at first because they were over a certain age and later because they had been in Post-Secondary Education four years or more. For single students in the Independent Category, OSAP did not take account of parental income. Such students could accordingly receive virtually full assistance for educational and living expenses even if they came from wealthy families. The other single students were placed in the Dependent Category. They received differing amounts of assistance depending on Parental Income. The lower the Parental Income, the higher the assistance.

Whatever a student's category, anyone who qualified for assistance under OSAP was expected to take out a loan. This Loan Threshold involved a Ceiling whose amount was fixed by the Government from year to year. Students who qualified for assistance that was higher than the Loan Ceiling received their aid in the form of grants.

These grants to students came from the Treasury of the Kingdom. In that sense, they were similar to the Operating Grants paid to the Universities. Accordingly, OSAP grants also came under scrutiny with the onset of the Period of Financial Difficulty. As we have seen, the Government could economize on Operating Grants by raising tuition fees. The Government discovered that it could economize on OSAP grants by raising the

Loan Ceiling.

The Loan Ceiling was raised in two steps. First it went from \$600 to \$800. Then it went from \$800 to \$1,000. Each of the years in which the Loan Ceiling was raised was also a year in which the Government stipulated that there would be no increase in tuition fees. This seemed reasonable to some of the subjects of the Kingdom. After all, students were being spared from the Double Blow of a tuition fee increase and a higher loan ceiling at one and the same time.

But a few subjects of the Kingdom could not help but wonder. These were the subjects who had noticed how much the Premier himself liked to announce that there would be no increase in tuition fees. It was indeed possible that this was because the Premier did not like Economic Barriers to Accessibility. Yet higher tuition fees would not have been a Barrier for those with Ability to Pay. On the other hand, the higher loan ceiling affected precisely the group of students who qualified for OSAP, many of them because they lacked Ability to Pay. Had the Government thought of increasing tuition fees rather than raising the loan ceiling? Of course, by not increasing fees the Government was being nice to all students and their parents, while raising the loan ceiling affected only the students who qualified for OSAP. Only about half the students in the Kingdom qualified for OSAP.

For the subjects of the Kingdom who liked to wonder, there was another thing. When the Government said "there will be no increase in tuition fees," there was no increase in tuition fees. When the Government increased Formula Fees by \$100, the Universities all raised their actual tuition fees by identical amounts. Did this mean that University Autonomy was dead? Perhaps fee-setting was not all that important to University Autonomy. But some Good Doctors and Lay People felt that autonomous fee-setting was indeed important, and they were fond of pointing to two minor episodes that took place during the developments already

related in this story. These episodes indicated that autonomous fee-setting was not Quite Dead.

The first episode was the Saga of the Third-term Graduate Fee. At the outset of the Period of Financial Difficulty, the Government decided to increase the Formula Fee applicable to Graduate Students who studied year-round by charging for three terms rather than two. This entailed a 50 percent increase in the old Formula Fee.

Graduate Students who study year-round are very likely studying to become Good Doctors. As a result they are much beloved by the Good Doctors in the Universities who like to reproduce themselves and to Contribute to Scholarship. The higher Formula Fee for Graduate Students was accordingly received with Great Consternation. To make a long story short, what happened after some experiments with Special Bursaries was that the Governing Bodies of the Universities did not levy a third-term fee. The three-term Formula Fee remained in effect, creating a financial saving for the Treasury and a loss for the Universities. Clearly, however, the Governing Bodies had acted Autonomously.

The second episode is the more recent Saga of the Foreign Visa Student Fee. A Foreign Visa Student is a student who is neither a Citizen nor a Landed Immigrant and who comes from Places Other than the eight Kingdoms and one Royaume with which Ontario forms a Loose Alliance called Canada. Citing "mounting public concern regarding the cost to the Ontario taxpayers of educating foreign students in our post-secondary institutions,"⁽⁵⁾ the Government applied a Formula Fee of \$1,00 per two-term academic year to nearly all Foreign Visa Students who might come to the Kingdom in future. In most programs, this was more than double the Formula Fee applicable to Citizens and Landed Immigrants.

(5) Statement to the Legislature by the Minister of Colleges and Universities, May 4, 1976, p.1.

Virtually all the Governing Bodies in the Kingdom responded by increasing their actual fees on new Foreign Visa Students to the exact amount of the Formula Fee. However, many complained that the new fee discriminated on the basis of Ability to Pay, was Injurious to Scholarship and Harmed Heterogeneity. A couple of Universities apparently felt strongly enough about these things that their Governing Bodies refused to levy the higher fee and prepared themselves to Pay the Penalty. No one could be sure how the Saga of the Foreign Visa Student Fee would unfold, but its early stages had brought a limited indication that tuition fee autonomy was not Quite Dead Yet.

Probably not many subjects cared about this. But there were a few who wondered about a Resurrection of tuition fee autonomy. These were subjects who believed that the Government had certain Influential Friends who believed in something called Privatization. They wondered, as did, in their own way, the subjects who worried about Economic Barriers to Accessibility, and those who wanted the Government to raise fees as a means of overcoming Financial Difficulty.

But as is the case with all Complicated Matters, everything was Interconnected. Thus, for example, whenever the Premier said that there would be no increase in tuition fees, the result was not simply to keep fees at their existing level but to control spending on Student Assistance. This is because OSAP provided assistance that included the actual fees levied by the Universities. If the Government had left Formula Fees the same without at the same time stipulating that the Universities must not increase their actual fees, any Governing Body that raised fees would have increased the amount spent on OSAP and further drained the Treasury of the Kingdom. Whatever their state of confusion as they beheld this Interconnection, it was Perfectly Clear to the subjects of the Kingdom that they lived in a Complex Society.

Tuition Fee Determination in Ontario

By pure coincidence, the mythical Kingdom that provides the setting for the above Fable has the same name as the real-life jurisdiction of Ontario. If one admits the possibility that the events described in the Fable might by chance coincide with those that have taken place in this Province, the principal characteristics of tuition fee determination in Ontario can be summarized in point form.

(1) Decisions concerning tuition fee levels are made at the summit of Government. This is borne out by the choice of spokesmen for tuition fee announcements, as it is by the principal consideration cited when fees are increased, namely a judgement as to what portion of costs should be borne by students and taxpayers respectively.

(2) In that students as a group have been sheltered from inflationary pressures that have beset society generally, they have benefitted substantially from the process of tuition fee determination. Table I illustrates the extent of this benefit by offering a comparison of the formula fee in standard Arts programs with the Consumer Price Index since 1970. With respect to the first \$100 fee increase, which was recorded in 1972-73, the Table indicates a higher formula fee (\$543) than was warranted by inflation from the base year of 1970-71. However, had the base year been that in which formula funding began, (1967-68), the first \$100 fee increase would have almost exactly caught up with the general price movements that occurred after the introduction of the formula.

It is since 1972-73 that the extent of shelter from inflation is clear. Even after the second \$100 fee increase that is to take effect in 1977-78, the resulting formula fee of \$416 in 1970-71 dollars will be well below the comparable fee of \$543 in 1972-73 and also below the \$485 fee that prevailed in 1970-71. If the 1977-78 fee had been set at the level indicated by the

movement of the CPI since 1970-71, its amount would be \$799, 16.6 percent higher than the \$685 fee that will be in effect. Although the Government has been careful to refer to the principle of horizontal equity between taxpayers in general and students in particular when it has chosen to increase tuition fees, students emerge as clear winners.

(3) If tuition fee determination can be characterized as beneficial to students, it can also be characterized as virtually unrelated to annual university expenditure requirements and only loosely related to considerations of over-all fiscal management. Tuition fee increases are periodically imposed with seeming reluctance only after the Government has already countenanced substantial increases in its operating grant expenditures for university support. This is illustrated in Table II, which shows tuition fee revenue as a percentage of operating grant revenue and as a percentage of combined fee and operating grant revenue for the university system in the years 1970-71 through 1977-78. From a peak of some 19 percent of combined revenue in 1972-73 and 1973-74, fee revenue was allowed to drop to 15.6 percent by 1976-77. The fee increase for 1977-78 will lift tuition fees to an estimated 16.9 percent of combined revenue, the same proportion as obtained in 1970-71. The latter year is significant in that Governmental concern over mounting public expenditures first acquired a tone of urgency in the early 1970's. It is a fair conclusion that tuition fees have not been used as an ongoing means of dampening the rate of growth in provincial spending. Or to put this proposition in a slightly different way, the operating grants accorded to universities have not been sacrificed on an altar over which financial benefits to students in the form of low fees and tight fiscal management of growth in government expenditures have concelebrated as high priests.

(4) Tuition fee determination has a curious linkage to student assistance determination. On the one hand, the Government is careful to offset tuition fee increases by making requisite adjustments in its student assistance estimates

TABLE I

COMPARISON OF ACTUAL AND REAL FORMULA FEES
FOR ARTS AND SCIENCE STUDENTS:
1970-71 to 1977-78

	(1) Arts & Science Formula Fee	(2) CPI (1970=100) (1)	(3) Real Formula Fee (1970 dollars) (2)
1970-71	485	100	485
1971-72	485	102.9	471
1972-73	585	107.8	543
1973-74	585	115.9	504
1974-75	585	128.6	455
1975-76	585	142.5	411
1976-77	585	153.2	382
1977-78	685	164.7 ^e	416

e. Estimated at 7.5% above the 1976-77 index.

1. The CPI is based on 1971 benchmark basket of goods and services and represents an index for the calendar year. Thus, for example, the CPI number opposite 1970-71 for the calendar year 1970.

2. Equals Column (1) ÷ Column (2) x 100.

TABLE II

TUITION FEE REVENUE AS A PERCENTAGE OF PROVINCIAL
OPERATING GRANT REVENUE AND AS A PERCENTAGE OF
COMBINED FEE AND OPERATING GRANT REVENUE
PROVINCIALY ASSISTED UNIVERSITIES
OF ONTARIO, 1970-78

	Revenue from Tuition Fees (\$000)	Revenue from Provincial Operating Grants (\$000)	Combined Revenue from Fees and Grants (\$000)	Fee Revenue as a % of grants Revenue	Fee Revenue as a % of Combined Fee and Grant Revenue
1970-71	61,866	304,364	366,230	20.3	16.9
1971-72 [*]	65,581	347,229	412,810	18.8	15.9
1972-73	82,058	358,350	440,408	22.9	18.6
1973-74	92,063	385,365	477,428	23.9	19.3
1974-75	97,373	444,324	541,697	21.9	18.0
1975-76	111,555	531,969	643,524	21.0	17.3
1976-77	117,205	634,966	752,171	18.5	15.6
1977-78	139,549	686,300	825,849	20.3	16.9

* Adjusted from 10 month fiscal year.

Source: COFO-UO Actual Revenues and Expenditures 1970-77 through 1975-76; COFO-UO Budget Data 1976-77; Estimated Data for 1977-78. Figures include Wilfrid Laurier University from 1973-74 and church-related colleges from 1975-76.

for the year in which the fee increase is to take effect. On the other hand, OSAP grant expenditures are controlled through higher loan ceilings in years when tuition fees are not increased. In a setting that calls for over-all fiscal restraint, it seems fair to conclude that stable fees of benefit to students generally have enjoyed priority over student assistance of benefit to students selectively. The fairness of this conclusion can be gauged by the fact that two increases in the OSAP loan ceiling totalling \$400 took place within a five-year span in which there was no increase in tuition fees.

(5) Tuition fee determination has been blind to issues of equity among students, whether in terms of benefits received or ability to pay. If anything, tuition fee determination has been perverse with respect to both kinds of equity. This point will receive the elaboration it deserves later in this paper.

(6) The process of tuition-fee determination by Government has accorded full respect to the letter of the law where the fee-setting prerogative of university Governing Bodies is concerned. The Government of Ontario has controlled fee levels de facto simply by having recourse to the spending power. The spending power can transcend jurisdiction divided by statutory law just as easily as, in the domain of federal-provincial relations, it has transcended jurisdiction divided by constitutional law.

(7) The effective role of autonomous Governing Bodies in tuition fee determination has become limited to exempting selected groups of students from Governmentally determined fee increases that universities deem odious for reasons of their own. The third-term graduate student fee was rejected by all universities on grounds which, whether they stemmed from concern for true scholarship or faculty ambition, must be called academic in nature. Broadly academic motives appear to underlie the reluctance of many universities and the refusal of a few to implement the increase in fees for foreign visa students. Given the spending power, the price of fee autonomy is readily

calculable by any Governing Body from year to year. It is the revenue foregone by not charging the formula fee level set by Government.

Issues in Tuition Fee Determination

Equity Among Students: Benefits Received. A major issue in tuition fee determination revolves around the extent to which fees should recognize that some programs confer greater private benefits in life-time earnings than others. It is plain that professional programs like Dentistry, Law and Medicine confer higher benefits of this type than undergraduate programs in Arts and Science. In its document on Issues and Alternatives in Education, the Ontario Economic Council points out that the principle of benefits received indicates that the proportion of instructional costs borne by students in programs that confer higher private benefits should be greater than the proportion of costs borne by students in programs that confer lower private benefits.⁽⁶⁾ Earlier the Commission on Post-Secondary Education in Ontario recognized a diluted version of the same principle by advocating that program fees should rise with instructional costs, but that the proportion of fees to costs should be identical in all programs.⁽⁷⁾

In Table III, it is assumed that the formula weights accorded to various programs are a rough proxy for relative program costs. Given this assumption, annual program costs per student equal Basic Operating Income per student, namely the Basic Income Unit Value multiplied by the program weight. The formula fee is then taken as a percentage of Basic Operating Income per student in three programs--General Arts, Law and Medicine.

(6) Ontario Economic Council, Issues and Alternatives in Education, 1976, 9.21.

(7) Commission on Post-Secondary Education in Ontario, Draft Report, 1972, pp. 39-46.

The resulting percentages are the exact opposite of what might be expected from any application of the principle of benefits received. The assumption that underlies the Table could of course be refined by attempting to distinguish the instructional from the research or public service costs that are encompassed in Basic Operating Income, but because formula income is a proxy for all three costs the clear pattern portrayed by the Table would surely not change dramatically.

There is no question that tuition fee determination in Ontario has totally ignored the issue of equity among students that is posed by the principle of benefits received. This was true historically, of course, with respect to tuition fee setting by Universities themselves. Thus, for example, the historically determined formula fee of \$485 for Arts students was 71.9 percent of the \$675 fee for Medical students. As for the advent of Government in tuition fee determination, the two \$100 fee increases yield a new Arts fee of \$685 that is 78.3 percent of the \$875 fee in Medicine "Plus ca change, plus c'est injuste".

Equity Among Students: The Role of OSAP. The Ontario Student Assistance Program raises a number of major issues that have a direct bearing on tuition fee determination. With particular regard to equity in fee setting, the most important features of OSAP are the category of independent students and the loan ceiling.

Under OSAP, a student is considered independent from his or her parents by virtue of marriage or four years of post-secondary education. From the moment this status is acquired the "independent" student receives treatment that is identical to that accorded an otherwise similarly situated dependent student whose parental income is zero. In effect, he or she qualifies for a combined loan and grant sufficient to meet all the educational and living costs recognized by his or her program. In brief, the offspring of even the highest income families are transported, on the magic carpet of independent

TABLE III

FORMULA FEES AS A PERCENTAGE OF BASIC OPERATING INCOME PER STUDENT
IN ARTS, LAW AND MEDICINE

	General Arts Formula Fee	BOI per General Arts Students (BIU Value XI)	Arts Formula Fee as % of BOI	Law Formula Fee	BOI per Law Student (BIU Value X 1.5)	Law Formula Fee as % of BOI	Medicine Formula Fee	BOI per Medical Student (BIU Value X 5)	Medicare Formula Fee as % of BOI
1970-71	\$ 485	\$ 1,650	29.4%	490	2,475	19.8	675	8,250	8.2%
1971-72	485	1,730	28.0	490	2,595	18.9	675	8,650	7.8
1972-73	585	1,765	33.1	590	2,648	22.3	775	8,825	8.8
1973-74	585	1,825	32.1	590	2,738	21.5	775	9,125	8.5
1974-75	585	1,955	30.0	590	2,933	20.1	775	9,775	7.9
1975-76	585	2,111	27.7	590	3,167	18.6	775	10,555	7.3
1976-77	585	2,312	25.3	590	3,468	17.0	775	11,560	6.7
1977-78	685	2,525	27.1	690	3,788	18.2	875	12,625	6.9

status, to the same position occupied by the offspring of the lowest income families.

In and of itself, this feature of OSAP poses a major issue in that it involves the equity principle of ability to pay, and all the more so when it is recalled that proportionately more students in professional programs come from affluent families than do students in undergraduate programs.⁽⁸⁾ As for the applicability of the principle of benefits received to tuition fee determination, independent status has a crippling impact. High-benefit professional programs are almost invariably those which, given the requisite undergraduate preparation, will have a large majority of students--in excess of 60 percent--who automatically qualify for independent status under OSAP simply by virtue of four prior years of post-secondary education. Under such circumstances, the higher tuition fees levied through an application of the principle of benefits received would be paid entirely by Government on behalf of most professional students. The retention of independent status, especially for single students who qualify by virtue of the four-year rule, is accordingly a prime barrier to the application of the principle of benefits received in tuition fee determination.

The loan ceiling, for its part, can also be seen as a barrier to such an application. In that OSAP arbitrarily limits the maximum guaranteed loan available to all students to the same amount, the higher fees that would result from the application of the same amount, the higher fees that would result from the application of the benefits principle could not be financed through Government-guaranteed loans. To say that private loan funds are more readily available to students in programs that

(8) Secretary of State, Some Characteristics of Post-Secondary Students in Canada, 1976, pp.42-43. 47 percent of the students in professional programs reported fathers' income of \$15,000. The percentage for full-time undergraduates was 37.

promise high lifetime earnings is simply to recognize that the OSAP loan ceiling is a less formidable barrier to higher fees in high-benefit programs than independent status.

By recommending the abolition of both loan ceilings and independent status, the Ontario Economic Council clearly faced the issues of equity posed by OSAP in relation to tuition fee determination. A completely unrelated group, the Interim Committee on Financial Assistance for Students, recommended like abolition on grounds of equity in financial assistance per se, whatever the mode of tuition fee determination.⁽⁹⁾

Other Issues of Equity. Because the level of tuition fees affects the level of public expenditure in operating grants, relatively low tuition fees affect both horizontal and vertical equity between students as a group and the taxpayers who finance their education. It is generally agreed that Government expenditures in Ontario have subsidized students as a group and, given on average the higher family income background of the student population, have redistributed resources in favor of upper income groups. It is also recognized, however, that the issue of horizontal and vertical equity can only be viewed definitively in the context of all Government expenditure programs and all sources of revenue.

A paper of this scope is hardly the appropriate forum for a review of the fiscal incidence of Government revenues and expenditures in Ontario. The changing incidence of these revenues and expenditures in the last half-dozen years may well have improved the equity of these revenues and expenditures as a whole. If this has been accomplished, however, it has not been because of changes in university financing. In that specific realm, a telling case in point is the shelter that tuition fees

(9) Report of the Interim Committee on Financial Assistance for Students, Toronto, 1977.

have enjoyed from inflationary pressures and the consequent additional subsidy to students vis-à-vis taxpayers generally. Table IV indicates the foregone saving in operating grant expenditures from the tuition fee policy that has prevailed in this decade. The cumulative total is \$71.6 million. Whatever the deficiencies in the existing student assistance programs, an alternative policy of indexing fees might have been accompanied by increases in OSAP grants to offset the higher fees. Had this been the case, and transferring by rule of thumb 40 percent of the foregone saving in operating grants to OSAP, there would remain a net saving of over \$41 million.

Institutional Fee Autonomy. University responses to the formula fees imposed on graduate students and foreign visa students are signs that institutional fee autonomy, in the words of the Fable, "is not Quite Dead Yet." With respect to the "nuts and bolts" of operating grant and student assistance formulas, formulas, a restoration of fee autonomy to healthy life could be readily accommodated. Indeed the current operating grants formula presents no problem whatsoever. Formula fees can be selectively adjusted by Government to indicate the direction in which fee policy might develop (e.g. toward the application of a principle of benefits received), and can be generally adjusted by Government in relation to any desired level of spending on operating grants.

With respect to student assistance, the program requires the following simple adjustment, namely the substitution, with respect to allowable costs, of province-wide formula fees for the actual fees charged by institutions. This substitution would prevent "backdoor financing", through Government student assistance grants, of expenditures in institutions that choose to levy higher fees than others. In the wake of its adoption, an important reason for current interference with fee autonomy would disappear. Specifically, the Government could no longer cite the control of its student assistance expenditures as a reason for stipulating that assessed fees conform to formula fees.

TABLE IV

FOREGONE SAVING IN OPERATING GRANT
EXPENDITURES FROM INDEXING FEES
IN RELATION TO THE CPI

(\$000's)

	(1)	(2)	(3)	(4)	(5)
	Actual Fee Revenue	Fee Revenue Adjusted for Increases in CPI(1)	Actual Operating Grants	Operating Grants with Indexed Fees	Foregone Saving in Operating Grant Expenditures
1970-71	61,866	61,866	304,364	304,364	N/S
1971-72	65,581	67,483	347,229 [*]	345,327	+ 1,902
1972-73	82,058	73,337	358,350	367,071	- 8,721
1973-74	92,063	88,462	385,365	388,966	- 3,601
1974-75	97,373	103,816	444,324	437,881	+ 6,443
1975-76	111,555	131,793	531,969	511,731	+ 20,238
1976-77	117,205	148,864	634,966	603,307	+ 31,659
1977-78	139,549	163,239	686,300	662,610	+ <u>23,690</u>
					<u>71,610</u>

* Adjusted to reflect a 12 month rather than 10 month fiscal year.

1. Except for 1972-73 and 1977-78, the figure in column (2) equals the percentage increase in actual fees over the previous year (which is a proxy for enrolment growth) augmented by the rate of inflation necessary to maintain the real fee at its 1970-71 level.
2. For 1972-73 enrolment is assumed to increase by 3.73% which is equal to the actual increase in fee revenues of 25.1% reduced to take into account a 20.6% fee increase represented by \$100. The percent increase in enrolment augmented by the rate of inflation in 1972-73 over 1971-72 of 4.76% produces an increase in adjusted fee revenue of 8.67%. A similar exercise is done to calculate the adjusted fee revenue for 1977-78.

A potential danger of fee-setting autonomy is that its exercise by a particularly attractive institution could reduce the accessibility of that institution to middle and lower income groups. But this danger can be virtually eliminated to the extent that an institution that uses its autonomy in fee-setting uses that same autonomy to provide its own supplementary assistance for students. For that matter, the same danger can be even more simply overcome to the satisfaction of both the public and the universities through a simple linkage among university-determined fees, the Government's student assistance program, and its operating grants that would work as follows. The student assistance program would have a standard formula fee for the purpose of calculating the assistance costs of Government. The grant to the student, however, would take full account of the actual fee levied by the university. To balance its books, the Government would simply calculate the difference between the actual fee paid out in assistance to students at a given university and the student assistance formula fee, and subtract this difference from the operating grants payable to that university.

Technical barriers are accordingly not an issue in the resurrection of meaningful fee autonomy. The issue is instead truly profound. Tuition-fee determination in Ontario, together with student assistance policy, has steadfastly pursued, by Government direction, a path along which total inattention to principles of equity have prevailed. Should universities be expected to exercise autonomy vis-a-vis fees that would start from the existing base? If an affirmative answer is hardly fair, a major Government initiative to introduce equity in fee determination and student assistance is the necessary prerequisite to the resurrection of fee autonomy.

A Fable: Part II

The Great Kingdom of Ontario was indeed a Complex Society. It was not least for this reason that the Premier and his Ministers had been careful to surround themselves with many groups of Weighty Advisors. Accordingly there were Weighty Advisors to tender Weighty Advice on the Economy of the Kingdom, and others to tender Weighty Advice on Universities. There were yet other Weighty Advisors whose Advice was so Weighty that it was tendered under the Cloak of Anonymity. These Weighty Advisors were called Civil Servants. Some subjects of the Kingdom wondered if there might not be too many Weighty Advisors, anonymous or otherwise, but that is another story.

The Premier and his Ministers often heeded their Weighty Advisors. Thus, for example, Weighty Advice on Operating Grant Formulas or the financing of institutions was often taken seriously. On the other hand advice on tuition fees or student assistance was normally ignored. Perhaps this was because the advice on these matters was less than Weighty. Perhaps this was for Other Reasons. Perhaps this was because the Premier and his Ministers wanted Lower Tuition Fees. But if this is what they wanted the Tuition Fee for Arts was Too High and the Tuition Fees for Law and Medicine was Too Low. Perhaps the Premier and his Ministers wanted to Run the Universities. But they did not want to hear about Deficits, nor did they want to be called Management and to face the Good Doctors across something called the Collective Bargaining Table.

Time passed and the Period of Financial Difficulty was Lengthening. Some subjects of the Kingdom worried that it might also be Deepening. There were people in Other Lands who worried too. Some of these people were called Gnomes and worked in Counting Houses in places like the Great Republic of New York. The Gnomes watched the mounting expenditures of the Kingdom and Gnashed their Teeth. This worried the Premier and his

Ministers because from time to time they needed the Gnomes to Lend Money to the Kingdom. The Premier and his Ministers announced that they would try to move Towards a Balanced Budget. They hoped that this would please the Gnomes and stop the Gnashing of Teeth. But how could the Premier and his Ministers control the Expenditures of the Kingdom? And how could they do this in a manner that was Fair and Equitable?

The Premier and his Ministers ruled a Complex Society. They had many Weighty Advisors. Some of these Advisors wondered about Tuition Fees. Others wondered about Other Things. Of course, there were problems with Student Organizations who wanted Free Education on Demand. There were also problems with Influential Friends who spoke of Privatization. It happens that there was a Technique for Coping with all these problems. This Technique was so well known that the subjects of the Kingdom had their own name for it. It was called Muddling Through.

DISCUSSION - Douglas T. Wright

Some argue that economics is that distinguished subject in which the problems always stay the same, although the answers change. The fascinating thing about the papers for this conference is that they reveal a line of argumentation very similar to one that was established some years ago: what is so interesting is to speculate on why the analyses remain the same and why public policy apparently has not come to adhere more closely to the lines of development argued.

Even the issue of over-supply of certain kinds of highly qualified manpower, which was discussed at an earlier session of this conference, is not new. The first year, following almost 20 years of uninterrupted growth, in which a mismatch between supply and demand for graduates had a major perturbing influence on enrolment was in 1972. But earlier work showed that even by 1968 many graduates in Arts and Science had experienced unemployment.¹ The traditional notion of a preferred social status for graduates, even with general degrees, had already evidently become a fiction before the end of the sixties.

Tempting as it is to speak to many of the issues raised in the different papers given so far, I was asked to address Stefan Dupré's paper. So let me try to do that fairly concisely to open the general discussion.

The paper is set in the form of a fable which of course is a familiar literary device long used indeed to address political situations, but most often as entertainment. It might have been more interesting had the author tried to use

1. E.B. Harvey, Education and Employment of Arts and Science Graduates, research report prepared for the Commission on Post-Secondary Education in Ontario, Toronto, 1971.

the form of a parable, but it may be that our subject doesn't lend itself to that kind of moralistic treatment. This attempt to interpret what has been happening seems to me to reflect a kind of amazement or disbelief that public policy, that is political decisions by governments, should have been seen as it were to be so strange, so difficult to interpret, from the logic of economics.

I don't really think we need to be quite so perplexed - if we try to consider the way rules of evidence operate in the formation of public policy. Not only tuition levels and student aid, but other issues, such as rent control, the anti-inflation guidelines, and minimum wage levels, all reflect the contrast between economic analyses and the realities of factors that operate on political decisions. The whole has been very simply explained by that powerful little book of Jacques Ellul which is titled fittingly enough, The Political Illusion, in the following words: "what public opinion does not recognize is a fact has no political existence".² Our problem of course is that all the analyses of regressivity, considerations of equity, and so forth are not, for whatever reason, perceived by the public as being valid. Few tried more diligently than I and the other members of the Ontario Commission on Post-Secondary Education to persuade people of the regressivity of traditional patterns of financing post-secondary education. Few have had less - or more - success. The effort, arguing even with representatives of organized labour, in trying to persuade that our taxation system operated to tax the less well-to-do to support higher education benefits for the more well-to-do and particularly for those who expected to be more well-to-do, was futile. It isn't then at all difficult to comprehend the sequence of events that Steve describes in his paper, and to see how the political factors that have operated on the determinations of these have been utterly compelling.

2. Jacques Ellul, The Political Illusion, Knopf, New York City, 1967, p. 101.

There is no doubt that both university autonomy and the cause of equity in our society would be better served if we had in the first instance started or could now begin to fund students rather than institutions.

It is interesting and may be enlightening, as well, to look at some recent Australian experience. Our own experience of the "modernization" of post-secondary education goes back now about 20 years: the awakening of public interest and massive increases of public support for higher education started in the late fifties. But Australia, until Mr. Whitlam came to power in '72, was a remarkable sort of place. They were far enough behind in many areas that had they been a little sharper they could have come out ahead. In fact, instead, Mr. Whitlam tried to do the same in health, education, social services and so forth as others had done over a much longer time and tried to do it very quickly and on occasion more generously - and thereby brought on great difficulties. In Mr. Whitlam's campaign in 1972 he committed himself and his party to free higher education, free that is in terms of being tuition free. And this was evidently against some very good and emphatic advice from leading economists in Australia, which, I have been told, was repeated after the election. A group in Canberra called the Central Policy Review Staff, a Cabinet office policy secretariat, published a paper sometime later which said simply that zero tuition was "a step against equity". But it remains that the commitment was kept by the Whitlam government, and has not been undone by the Fraser government. Notwithstanding all the expert economic evidence, the popular view was no different from that that prevails here: high tuition is popularly seen as an inhibition to accessibility to higher education, and low or zero tuition is popularly seen as a means to facilitate the economic advance of those who are less fortunate. No experience could better validate the Ellul hypothesis.

As I've already noted the Ontario Commission on Post-Secondary Education tried a few years ago to promote wider understanding on the economics of higher education. It is interesting, in retrospect, to speculate whether, but for the Commission, Ontario might also have moved to zero tuition. There are enough evidences left over of handwriting on the wall to suggest that that very well might have happened in '71 and/or '72 but for the debate that COPSE let loose.

The important thing then about the history and evolution of these issues is the degree to which the public has become concerned, and the form popular concern has taken. I have a vivid memory of a summer afternoon spent talking with Mr. Leslie Frost and Dr. Ed Stewart at Mr. Frost's cottage. I guess it must have been about 1969, and Mr. Frost turned to reminiscences about the late thirties. One year then, when Mr. Hepburn was Premier, all university grants were terminated because of the financial crisis. As Mr. Frost put it, "nobody gave a damn".

When Vincent Bladen did the study³ on future financing for higher education commissioned by AUCC, he did not really address the issue of who should pay. He accepted the division of responsibility for recurrent cost as it then prevailed (roughly 70% government subsidy to 30% fee revenue) and simply presumed, without much argument, that it should be continued. The issues of political control of universities and of equity in finance, were peripheral to his main argument. The numbers he developed at that time which were widely thought to be unrealistically optimistic indicated that, by '75-76, recurrent expenditure on universities should total about \$1.7 billions annually. And allowing for inflation, actual expenditure levels are remarkably close to this projection. I don't think anyone who worked in a Canadian university in the early sixties

3. Financing Higher Education in Canada, being the Report of a Commission to the Association of Universities and Colleges of Canada, published for the A.U.C.C., University of Toronto Press and Les Presses de l'Université Laval, 1965.

could ever have dreamt that so much money would be spent as in fact has come to be spent by our universities. It's fascinating to wonder then why there seems to be such an air of despair in the university community.

As we look at the evolution and history of the past ten or twelve years in Ontario, the years since the Bladen report, Stefan Dupré notes very correctly that the development of a formula (an instrument that has had longevity that astounds all of us who were associated with its development in the early days) and its application first in 1967, had the effect of cementing government control over tuition level. This was because the definition of operating income in the formula embraced both government grants and tuition income. In a memorandum that was developed at that time by a subcommittee of the Committee on University Affairs and has been since circulated fairly widely,⁴ it was argued that it was "unreasonable to expect to realize a fixed proportion of university income from fees".

The political environment for post-secondary education in recent years, and currently, notwithstanding the apprehensions expressed in earlier sessions of this seminar, is remarkably benign. It is the case, and most regrettably, that education, particularly higher education, could too easily be made a political whipping boy, a scapegoat for other ills and distresses. We are fortunate in Canada generally and in Ontario particularly that this has not happened. There are evidences that it is starting to happen in other jurisdictions. I noticed a remarkable article in the London Sunday Times last week (May 1). A man named Paul Johnson, a former editor of the New Statesman, has written a powerful polemic called Enemies of Society. He devotes one chapter to universities, which contains the following paragraph:

4. Formula Operating Grants, memorandum and report of Subcommittee to Committee on University Affairs, July 4, 1965.

"On a world scale the university efflatus of the 1960's and early 1970's was followed by the worst economic depression for 40 years. What then became of the supposed line between the number of graduates and the size of the GNP? Britain's example seemed even more destructive of the theory since despite our huge efforts to expand university output, her economic decline continued and accelerated. Thus, university education was shown to be indexed linked neither to the GNP nor to individual earnings. What then was the point of it?"

If the British taxpayer is being urged to think in those terms then I would submit that the climate of public opinion that affects both total financing for higher education as well as the share of finance borne by the individual as against the state (which is really what the tuition fee argument is about), may be turning much cooler. Real incomes of academics in Britain have already declined by something between 20 and 25 per cent in the last four years because of the failure of the grant system to take account of rapid rates of inflation.

The most forbidding signal to date in Ontario was contained in Mr. McKeough's most recent budget where he projected a target of a balanced budget for Ontario in three years' time, with total expenditure increments in the next three years respectively of 6.3, 6.3 and 6.0 per cent. The big issue at Queen's Park is that if indeed such a target is to be achieved, how is it to be managed: whether the total cost as well as the public share of the cost of the various enterprises, now largely supported by provincial grants (schools, hospitals, colleges, universities and so forth) will both be constrained together, or whether the total cost will be allowed to increase somewhat more rapidly than the provincial contribution by allowing other resources of finance to be used.

It may be that this question should be left, for further discussion, at this stage. It seems that as we look at recent history and try to understand how policies and practices have evolved, we need now very much to turn the insight gained, such as it may be, to try to anticipate what may happen in the next five or ten years.

CAPITAL FUNDING IN POST-SECONDARY EDUCATION
IN ONTARIO: PROBLEMS AND PROSPECTS^{*}

by

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*In the preparation of this paper, I have relied heavily on the assistance of two of my colleagues at the University of Guelph, Mr. Derek Jamieson, Research Advisor to the President, and Mr. B. C. Smith, Research Associate in the Analysis and Planning Group.

1. Introduction

I was pleased to accept Professor Reuber's invitation to be with you today to discuss a subject which, to us in the universities, is of considerable importance, capital funding. My paper is divided into four main parts. In the first part, I review the history of capital support in this province which enabled the universities and the colleges to respond to the fantastic increase in student demand for places experienced in the 1960's.

In the second part of the paper, I discuss the 'capital freeze' and the effect it has had on institutions which were, in many cases, in the middle of well-articulated plans for development. In this section, I try to point out some of the inequities and imbalances that were introduced into the system because of the capital freeze.

The third section of the paper is concerned with the factors which should be considered in developing a capital support policy in the new circumstances we face. It seems to me important that these factors be well understood if one is to arrive at some sensible policy conclusions.

In the last section of the paper, I outline some suggestions for future policy with the objective of provoking some discussion.

Since my own experience has been exclusively in the university environment, most of my remarks will reflect that bias. In addition, of course, it is a fact that universities have received by far the largest share of government funds available for capital projects in post-secondary educational institutions. The funding of colleges has not been inconsiderable, however. Indeed, since the establishment of the Colleges of Applied Arts and Technology in 1965, the government has provided funding for

new facilities to the extent that disbursements of OUCAC funds to the colleges now total somewhat more than those provided to the universities on a per student basis. There is some indication that the colleges may be overendowed with space as measured by current rather conservative utilization standards. The colleges did incorporate many old facilities as part of their original plant and since have added nursing schools, many of them of rather ancient origin and quite decrepit. Overall, the problems of the colleges, in terms of the mismatch of space types and space needs, age and quality related to efficiency, and inequities, are basically the same as those faced by the universities. My remarks, therefore, although principally from a university perspective, can be taken to apply as well to the community college system.

2. Review of Capital Support Policy

Before looking to the short and medium-type future, it might be useful to seek some perspective by reviewing briefly capital funding in the late 1950's. In that period, increasing attention was paid, at both federal and provincial levels of government, to the problem of accommodating at the post-secondary level the post-war baby boom. These students currently in public and secondary schools would soon be reaching university age. Participation rates in the eighteen to twenty-four year old age group, which form the bulk of the university undergraduate population had until that time remained at relatively low levels. There was mounting evidence, however, that due to a combination of heightened awareness of the value of higher education on the part of governments, increased expectations and demand for accessibility on the part of students and their parents, and little prospect that the labour market could provide enough good jobs, the participation rate would increase. Enrolments were then growing at an average annual rate of 10 percent and predictions were that this would increase to approximately 20 percent. Three new universities, Carleton, Waterloo and York were

organized in the early 1960's, and two others, Waterloo Lutheran and Assumption achieved independent status. These new institutions supplemented the existing five, Queen's, Ottawa, Toronto, McMaster, and Western. Also, in the early 1960's, four more universities were founded, Laurentian, Lakehead, Trent and Brock. Another, the University of Guelph, was reorganized and expanded and two new campuses of the University of Toronto, Scarborough and Erindale, were created. Annual increases of 10,000 students were being realized during those heady and exciting days.

New provincial administrative structures were developed to assist the universities in coping with the inevitable stresses and strains resulting from rapid growth. What is now the Council of Ontario Universities was formed in 1962. The Department of University Affairs and its advisory body, now the Ontario Council on University Affairs, was created in 1964. The CAAT Colleges were created on the base of the Applied Arts and Technology schools in 1965. By the time the Department of University Affairs was formed in 1964, existing university facilities were straining under the pressures of growth. Private fund raising had been successful in meeting the costs of the initial stages of the expansion, but were rapidly drying up as the real dimensions of the need became apparent. Indeed, at the provincial level, it was clear that the government could not afford to continue to fund new construction from operating revenues. The Provincial Treasurer saw long-term debt, distributing the load over future years, as a solution and the Ontario Universities Capital Aid Corporation (OUCAC) was established as the principle mechanism for meeting the development needs of the universities. During this period, increasing pressure was being placed on the government to assess the overall magnitude of capital needs and to establish guidelines to ensure an equitable distribution of the funds among institutions. As an initial step, the Department of University Affairs defined five building categories, academic, administrative, student services, residence, and the inevitable 'other', and five corresponding percentage levels, 85, 85, 50, the equivalent of 20, and 0, at which support would be provided.

The Department tended to focus its attention on master plans as a basis for development and retained the right to approve the release of funds on a project-by-project basis.

Through 1967, the student population continued to increase at annual rates of 20 percent. Debenture issues from OUCAC were at \$100 million per year levels, and a rate of \$200 million was planned. "A place for every qualified student" was the government's motto. The colleges moved into a period of rapid expansion and began to be funded through OUCAC debenture issues. A solid foundation for the concept of 'Future Shock' was laid and mud was a major concern of university presidents everywhere followed closely, of course, by increasing student militancy! Expo '67 and other centennial projects provided severe competition for building materials and workmen, and many buildings were constructed in that period that would soon need repair. Throughout the period, there continued to be concern about the efficiency of the use of space built as well as about inequities in the distribution of capital funds among institutions. In December 1967, a consultant was hired to collect space data and recommend space standards. It was soon apparent that the consultant's report would not be prepared in time to be useful in guiding the flow of capital funds. Faced with an urgent need for an objective instrument to assist space planning, the 'Interim Capital Formula' was developed and instituted in 1969. Its introduction was "to provide objective measures of needs against predetermined standards that assure full and objective utilization of physical resources". Certainly, it contained all the essential elements of such a measure. The formula consisted of an independent measure of input, students, which were weighted by groups of similar need, a space standard, 130 square feet per student, which would satisfy a reasonable need for facilities within a predictable ceiling, and a cost factor, \$55 per assignable square foot, to price out identified requirements. The formula was compared to institutional inventories of space to determine how much of the need had already been met. The difference was that magic figure

'entitlement'. Other adjustments for age and quality, trimester, and cooperative programs, and emergent universities, were introduced to improve the match between allowance and need. The formula met a dual need. For the universities it provided a means by which future cash flows could be predicted over the long time periods necessary to bring the buildings on stream. For the government, it provided a global ceiling and some overall control on expenditures. The formula approach worked sufficiently well that the concept was extended to what was called 'cyclic renewal', a broad concept which included the repair, alteration, and eventual replacement of a building. Through the main planning and construction period of the late sixties and early seventies, then, the province and the universities appeared to have a complete and comprehensive method for the distribution of capital funds which was equitable and efficient. Under formula financing, some \$200 million was distributed annually as the university and college systems grew to accommodate 170,000 students, a 600 percent increase during the decade.

At this time, three separate elements appeared which greatly affected developments in higher education in the 1970's. Firstly, the overall dimensions of the costs of growth in the social services provided by the federal and provincial governments became obvious, and to many they were staggering. Restraint, it was concluded, was necessary. Secondly, several studies of the costs and benefits of higher education were published by the federal government, prepared by the staff of the Economic Council of Canada. All showed university education to be profitable to individuals but highly regressive. Gradually, the excessive social valuation placed on higher education in the 1960's was replaced by excessive under-valuation, a typical Canadian phenomenon. Thirdly, severe stress on the capital market was being experienced due to heavy borrowing by the primary utilities and the federal government.

In November, 1972, the Honourable Jack McNie, the Minister of Colleges and Universities, announced the 'capital freeze' which took the form of a moratorium on all major capital projects not then under construction. The freeze was defended on the grounds that projections showed negative capital entitlements for the university system as a whole, although in retrospect, one must wonder about the accuracy of these projections. It was clear, however, that by the time of Mr. McNie's announcement, the main job had been done. Not all problems had been solved, of course, but the base facilities to accommodate the demand for post-secondary education in Ontario had been put in place or were under construction.

The system of funding that was designed at that time is in almost every respect the one which we have today. The universities of Ontario serve the instructional and the related needs of some 190,000 students in 22.5 million square feet of primary space, and operate another 6.5 million square feet of residence space at cost. The colleges serve an additional population of 80,000 students using another 8 million square feet of space. The university and college buildings are almost entirely of recent origin, with less than 5 percent older than 40 years, and the majority less than 15 years old. The buildings were built at an original cost of \$1.5 billion and today represent a total investment of almost \$3 billion.

3. To Freeze Is To Create Problems

The imposition of the freeze on capital funding created a number of difficulties for all universities in the system. Inequities were built into the system and inefficiencies have subsequently emerged in the system as a result of the continuation of the policy. The most obvious effect of the capital freeze was the abrupt termination of major building programs in the universities; naturally, that was its purpose. Since the government first provided substantial capital support, its concern that the development of the universities should proceed

in an orderly fashion within articulated and defined "campus plans", had remained. This theme persisted through the years in which the Interim Capital Formula was used as the funding mechanism and was the unifying concept of the building programs in all universities. The universities did not construct facilities simply because they had 'entitlement' under the formula. They worked to implement plans which would provide a complete and integrated educational environment.

In 1972, many of these plans were incomplete. Some buildings had received first and second stage approval. Tenders had been called on some projects which were within days of being awarded. The freeze wasted the results of months of planning and design. A measure of the extent of these difficulties is provided by the projects that have been funded since the moratorium, and it is to the government's credit that several of these major deficiencies have been corrected. But a survey of the capital requests which universities make annually to the Ministry reveals the imbalances and truncated plans that remain.

Since the freeze, the universities have had an opportunity to better measure the utilization of university facilities. The report of the consultant became available finally in early 1973, and three task forces and several committees of the Council of Ontario Universities have addressed the subject in later years. These reviews, because they were developed from a "utilization" point of view, tended to treat space from a functional perspective. Libraries would be measured as libraries and classrooms as classrooms, regardless of whether the student using the space was in a medical program, in engineering or the humanities. This is a very different approach from that used in the Interim Capital Formula which was designed to develop the needs of specific user groups in terms of a composite of space types. Admittedly, this often masked deficiencies of a single space type within the overall picture. These, later, differently organized, and more detailed studies show that the imbalance of university facilities with needs within specific

space types remains as the most serious problem facing the institutions in terms of capital facilities. Some of these problems have been solved but many remain.

I suggested earlier that I wondered about the accuracy of the projections which indicated that the university system was about to become overbuilt. I so speculate because the Interim Capital Formula was based on a one-year projection of full-time student enrolment, the projection being necessary to allow some lead time for the construction of the facility. It was in 1971 that the universities first experienced serious enrolment forecasting problems. It appeared that substantial numbers of upper year students in that year had 'stopped out', perhaps in response to a weakening job market for graduates and perhaps because of growing scepticism of the value and intrinsic worth of university education. The shortfall in anticipated revenues came as a real shock to some universities. It was not long before budget officers in the interest of prudent operating budgeting veered from heady optimism to gloomy pessimism. Because capital forecasts were tied to operating forecasts through the Capital Formula, and operating forecasts were being trimmed back, the forecast of space needs was regularly underestimated, in some cases by as much as 10 percent. This contributed to the 'feeling' that the system was overbuilt.

Use of projected growth is also the source of another inequity now frozen into the system. In 1972 there were considerable differences in the growth rates of the universities, ranging from a drop of about 5 percent at the smaller institutions to an increase of 10 percent at Ottawa and Guelph. By the time freshmen students, which constitute a large percentage of this annual change, had progressed through the system, a process requiring three, four, or five years, the universities would end up at steady-state enrolments considerably different from those at the time of the freeze. In other words, little account was taken of the differing enrolment experiences of the various universities. Since then, of course, the students have enrolled

in numbers much as the "average" estimates had indicated. The system has accommodated the 16 percent growth in enrolment in the intervening years.

An important factor in the Interim Capital Formula already mentioned was the age-quality discount. At the time the formula was devised, the measure of space availability was taken to be the entire physical plant of the universities regardless of age, quality, or source of funding. To meet the criticism that the age or poor quality of some university facilities made them less effective than more modern buildings, a one-time discount for age, as the best proxy measure for quality, was proposed. The discount approximated a rate of 1 percent per year for buildings more than five years old. The amount flowing from this discount was subtracted from the university inventory, but this was equivalent to it being added to the 'entitlement' of the university as an increased allowance to renovate, repair, or supplement such facilities. The principle was that the universities would be given sufficient funds to bring their physical plant up to some base year condition, 1969, in this case, after which time they could fund any required repairs and alternations from the cyclic renewal allowance which also approximated 1 percent of the value of the plant. In reality, the scheme amounted to a capital depreciation allowance for buildings of about 1 percent per year. Unfortunately, the age-quality program was discontinued with the introduction of the freeze, after having been fully funded for one year of a five-year staging period, and partly funded for another. This left some universities, notably the University of Toronto, with a large amount of space that was old, inefficient, and expensive to maintain. This space is still in use and most of the space that was scheduled for major renovation or replacement under this program has had to be used in the years since 1972 to accommodate growth since that time often at very high cost.

These, then, are the main difficulties that resulted from the introduction of the 1972 capital freeze: non-completion

of the age-quality program, underestimates of the need for space arising from both overly pessimistic enrolment projections, and inadequate allowances for growth of enrolments to steady-state conditions, and the termination of well-developed programs at inopportune times.

Since that time, the most important concern in the universities has been that 'cyclic renewal' funding was included in the freeze. The universities may be able to cope with some old and inefficient buildings and work without some types of facilities but the universities cannot manage without funds necessary to adapt their capital plants to changing needs. Change is at the centre of the modern university and change demands adaptation in both programs and facilities. The universities have the human resources to adapt and to teach others to adapt, but their efforts will be much less successful without the facilities to accomplish their task.

It is not enough for the government to say that, if this need is so important, then why not fund it yourself from other sources or revenues generated by the operating formula. The universities are funding it themselves to the best of their present ability. A decline, in real terms, not in absolute dollars, of 20 percent in operating revenues in the last five years has not helped, of course. The universities have funded their operations from reserves that, in many cases, are now almost depleted, with little left for renovations. The Government is in a position to separate funding sources in a way that the universities cannot. Investment in capital and maintenance must be a concern of government. Perhaps a deliberate policy of capital consumption has been adopted. We feel it is short-sighted and self-defeating.

4. Factors To Be Considered In Capital Funding Policy

Crucial to the development of policy is an understanding of the government's objectives in the support of post-secondary

education in general, and in the capital support area in particular. I presume the government supports post-secondary education to ensure a pool of highly skilled manpower essential in the complex economy we have developed. I presume that government also has an interest in maintaining a thoughtful, intelligent, and critical public who can participate effectively in the economic, political, social and cultural life of the province and Canada. I presume that the government wishes to ensure that qualified young people, regardless of income level or location, have an opportunity to receive post-secondary educational experience.

In the restricted area of capital support for post-secondary institutions, it would appear that the government has only two alternatives. One is to continue the present capital freeze indefinitely, letting institutions consume capital and responding only in cases of extreme emergency. The second alternative is to attempt to maintain capital facilities at a level which will permit post-secondary institutions to discharge their functions in a reasonably efficient manner.

As I have indicated, the Province of Ontario has an investment in excess of \$2 billion in capital plant in universities alone, with a further \$1 billion invested in Colleges of Applied Arts and Technology. From a narrow financial perspective alone, it would seem obvious that government would want to preserve this investment. If the capital plant is allowed to deteriorate and grow obsolete, it is inevitable that the quality of education will suffer drastically. The quality of research done in universities suffers as faculty use less than adequate facilities for their programs and this will directly impact the quality of of teaching in the classroom and the laboratory.

It seems to me that the second alternative I have mentioned is the only reasonable course for a government to pursue. Assuming that the government is prepared to commit funds for capital support, what factors must be taken into account in

determining what the appropriate level of funding is for the system and in determining how to allocate these funds among institutions?

The problem has two parts. As I have mentioned, the introduction of the capital freeze caught many institutions in a position of distinct imbalance in their facilities and before the inequities of old age and quality of plant had been properly recognized. Thus, one part of the capital problem is to restore the balance and equity of facilities among institutions. If you like, this is the 'one-shot' problem. The second part of the problem is how to determine an appropriate funding mechanism to take care of the continuing difficulties institutions will have in keeping their facilities in a reasonable state of repair and, more important, current with respect to changing program needs.

Demographic projections indicate that there will be a continuing upturn in student demand for places through the early 1980's and this, coupled with the fact that there is a long lead time required in the construction of complex facilities, has led to the belief that policy decisions must be made immediately if an adequate number of places are to be provided for this bulge in numbers. I believe, for a variety of reasons, that the projected bulge will be somewhat smaller than many expect but, if steps are taken to deal with the 'one shot' problem of correcting imbalances and inequities in the system, something that should be done anyway, then the universities will be able to handle an increase in numbers without the need to build new space or adopt an 'Ajax' solution.

The obvious first step in dealing with the 'one shot' problem is to obtain an accurate estimate of the real need of the various institutions. One could seek and get subjective expert opinion or determine need according to some objective standards. If the first method were adopted, one can envision officials of the Ministry of Colleges and Universities fanning

out over the Province, observing conditions in the various institutions, listening to their problems, and then compiling a list of projects to be undertaken.

A more satisfactory way of proceeding would be to determine need by a formula process. The following steps would have to be taken:

1. secure current inventory of existing space;
2. determine need expressed in terms of space required;
3. compare existing space with the required space; and
4. develop appropriate cost factors for providing any additional space.

Such an approach is well understood and, indeed, has been employed within the Ontario system. It might be useful, however, if I expanded a little on each of these steps.

Clearly, it is necessary to know what space currently exists. Both for a comparison among individual institutions and among different jurisdictions, it is necessary that the existing inventory of space be divided into various categories. The degree to which this subdivision into categories is carried out depends upon the purposes for which the study is being made. At the system level, fewer and broader categories are probably sufficient, since what one would be aiming at is a determination of the total amount of space required by the system. For the purposes of distribution among institutions, some finer subdivisions would probably be required in order to match the particular mix of programs which an institution has with the appropriate space for those programs. An even finer breakdown will, of course, be used by individual institutions, when allocating their inventory of space to the various units. The definition of these categories, at whatever level they are applied, requires a great deal of care if the analysis and comparisons to be made are to be meaningful. The process of

definition has already been carried out for universities in the Ontario system.

In determining the need for space, two steps are necessary. First, some measure must be developed which will serve as a proxy for the need for space. It would be ideal if a straight head count of students could serve as this proxy. Unfortunately, no such simple solution is possible. Clearly, a student enrolled in a program requiring extensive laboratory work requires different amounts and different types of space as compared with a student in the humanities disciplines. Not only a differentiation by type of student is required, but there are differing requirements in space provided for faculty. For these reasons, then, a variety of measures to express the demand for space are required.

The second step in determining need is to arrive at an appropriate space standard for any given input measure. This space standard may be something as simple as the space required for a library book, or it may be the space required by a person carrying on research in biological science. In some cases, the standards arrived at carry with them an understanding of a rate of utilization of the space. This is true for such facilities as classrooms, class laboratories, and dining facilities.

The determination of appropriate space factors has been the subject of a number of studies in a number of jurisdictions. The most recent of these studies has involved revisions to Building Blocks carried out by the Council of Ontario Universities. These standards are determined, of course, for each of the categories of space which have been defined for purposes of inventory taking, and for which there exist pertinent input measures. Multiplication of the space factors with the input measures permits determination of the appropriate need for space.

Once the data on imbalance and inequity has been collected for the system as a whole, the derived space need must be converted into dollar terms. The Interim Formula introduced a single average total cost per net assignable square foot, which included construction costs and equipment. It should be clear from what I have said so far, that different kinds of space have different unit costs. Clearly, a heavily serviced, heavily equipped laboratory will have a higher cost per unit than does a classroom or faculty office. Thus, it is appropriate to derive cost factors which are different for different categories of space. As in the case of the inventory and space standards, a certain amount of judgement must be exercised in the level of detail to which this breakdown of space is carried out. One further factor might be mentioned, and that is the question of the trade-off between the first cost of buildings and their life costs. The extent to which a higher first cost is justified in order to lower maintenance costs and to permit flexibility in the use of the space is an extremely complex matter, to which there is no definitive answer.

Once the 'one shot' problem has been solved, there remains the difficult question of determining the appropriate funding level for a system with a steady-state enrolment. The first and obvious question is why there should be a need for any funding at all. There are several reasons. First, facilities, particularly in a science area, become obsolete with changes and advances in the various disciplines. If the educational experience offered to the student is to be valuable, it is important that he or she have access to reasonably up-to-date equipment and the faculty member engaged in research and teaching has the same requirement.

Second, the types of programs sought by students entering post-secondary institutions will likely change over time and this implies a need for funds so that changes in the use of space can be made. Clearly, this factor would require careful

provincial monitoring since it is unlikely that government would want to make funds available for changes in space at institution A if surplus space of the required type was available at institution B.

A third point we must recognize is that some activities in an institution will continue to require additional space even with steady or declining enrolment. The obvious example of this phenomenon is the library which must continue to add to its collection if it is to stay current and provide an adequate level of service.

Finally, the buildings themselves wear out; more particularly roofs have to be replaced, heating and ventilating systems have to be upgraded or refurbished and so forth. In addition, provincial requirements embodied in building codes and fire marshal regulations have to be observed and these may require major renovations or replacement of space.

In designing a general policy for capital funding it will be necessary to define what is included in the word 'capital'. In the past, when completely new structures creating additional space were authorized, furniture and equipment were included as part of the capital cost. Will this be the case with renovation projects? Since funds for replacement of some furniture and equipment are included in the operating grants the issue is not clear cut. Yet, as I pointed out earlier, equipment, especially research equipment, rapidly becomes obsolete and replacement may involve major expenditures. Even the replacement of undergraduate laboratory benching for a major department may involve expenditures exceeding \$250,000.

Once we have identified those items which are to be included as capital, the development of a policy is still not easy. The Ontario Council on University Affairs has recently listed some factors which should be taken into consideration in policy development but has not stated the relative importance

of the items or the extent to which they should be considered.

For instance, a particularly thorny problem is the determination of the cash flow that is necessary to replace the major components of a building as they wear out. A study of building life costs conducted by the Council of Ontario Universities and the Ministry attempted to address this question. The task force concluded that the study could be used in a comparison of the effectiveness of various building sub-systems, but was much less effective as a cardinal measure of on-going replacement costs. Data problems and large variances in the expected life of components were some of the most obvious difficulties.

A later assault on the same subject by the Council of Ontario Universities suggested that, while major repair and alteration costs tended to rise smoothly during the first twenty years of a building's life, costs then levelled toward a sinusoidal variation about some average value, as components of the structure were replaced at regular intervals. This was important from a policy point of view because, in the multi-buildings situation characteristic of universities, the sum of the sinusoidal variations easily smoothed to an average and, considering that the average age of even the newest universities is now perhaps 15 years, or almost the twenty-five year plateau of constant costs, a single average value appeared to be an appropriate model for these costs.

This simple argument, really the analogue of a depreciation allowance, does not seem to be sufficient as a policy guideline. Suggestions have been made that a policy should explicitly include the trade-off which can take place between money spent on major repairs and alterations with that of a deliberate policy of non-repair, in anticipation that the entire facility will later be replaced. Others argue, quite rightly, that the cost of maintaining buildings of historical significance is inordinately high. Still others prefer to confuse the old age and poor quality problem, which we have dealt with in the

previous section, with the problem of adaptation and renovation of the plant for future use. The Ministry itself, wishing to ensure the proper use of limited funds and suspicious of a too simple policy, has released funds only on an individual project basis.

These factors have contributed to a lack of policy definition and, unlike the determination of need in the solution of the 'one shot' problem, the on-going maintenance problem has not yielded to a formula solution. It would seem only reasonable, however, that the government should plan to set aside some funds each year in an amount at least equal to the depreciation of the university plant. The subsequent distribution of these monies to institutions would probably have to remain on a project-by-project basis, and await the development of policy guidelines, in particular, a global policy of total fund generation.

5. Policy Considerations

Having set out for you some of the factors to be considered, it is now appropriate that I attempt to make some policy suggestions which we might consider. First, I would like to make some recommendations as to the goals that should be pursued and then consider possible methods for their implementation. I have deliberately kept this section of my paper short, in the hope that it will elicit comments and counter-suggestions from you on other policy possibilities. My first recommendation, as I have suggested, would be that the problem of capital funding be split into two distinct parts and that these be solved separately. The first part would be an appropriate solution to what I have referred to as the 'one shot' problem. The second part would be the establishment of a suitable level of funding to cover the problems of maintenance and obsolescence. My second recommendation is that, in addressing the 'one shot' problem, the needs in terms of amount of funds be determined by a formula approach. I believe that the amount of funds

required on this account, at least for the university sector, total approximately \$100 million. My third recommendation is, I fear, less definite, since the establishment of an appropriate level of funding for on-going capital costs is still under study. I would suggest, however, that after resolution of the 'one shot' problem, government should plan on setting aside an amount equal to 1 percent each year of the value of the total university inventory, approximately \$30 million. This figure should be regarded as a minimum and subject to revision as we require better knowledge of the problem.

I would like to emphasize that the resolution of the 'one shot' problem is of major and critical importance, both to accommodate the present student body and to permit universities to accommodate any increase in student numbers up to the mid-1980's, on a temporary basis. Therefore, aware that limited funds are available, I would place first priority on this.

My third recommendation, which dealt with determining a suitable level for on-going capital funding, could be deferred somewhat in the event that the government found it impossible to allot the necessary funds. Such a deferral, however, must not continue indefinitely.

Most of the problems and possible solutions I have attempted to place before you are not particularly new, and I am concerned that government has not been able to address these problems to any significant extent. I accept that government has a legitimate concern with the efficient use of any funds allocated for capital purposes. One method by which government might be persuaded that universities and other post-secondary institutions were behaving in a responsible fashion would be to have government give post-secondary institutions access to debentures for capital funding, but make access conditional upon the institutions raising some of the funds required from the private sector. Many would object to such a proposal on the grounds that the older institutions have a better chance of raising

funds from the private sector, since they are better known and have larger alumni bodies. This is certainly true but, on the other hand, these same institutions are experiencing the greatest problems with the age and quality of their existing physical plant. Another question must be answered at the policy level and that is whether all types of institutional space would be eligible for debenture support, and whether the support would be the same for types of space. Again, a policy would have to be developed on the percentage of funding which would have to be raised by the universities.

Finally, I cannot resist observing that, judging by the various articles which have appeared recently on problems in the construction industry and the engineering and architectural professions in our province, it would appear that any policy which made funds available to post-secondary institutions for the construction of new or replacement facilities would enjoy reasonably wide support at least in these beset sectors of our society!

DISCUSSION - B. Wilson

As Professor Forster has indicated, capital does seem to be rather a pedestrian thing when you get it put in context of the issues that you've dealt with so far. And I guess I'm going to follow a fairly pedestrian approach and probably show you an administrative bias in the comments I make. So be it. Before going into the paper in detail I would just draw one thing out. It seems to me that capital is a swing item to governments. Typically, capital is used when there's a bit of flexibility in the budget. It doesn't carry quite the same long-term operating connotations, although on the health side and many other areas, there are some pretty good formulas for the number of dollars of operating expense that flow in consequence of capital dollars. Therefore, it's really not capital policy we talk about as much as it is capital being an instrument of policy, financial policy and other matters. So I think we have to keep that in the back of our minds as we talk about capital as it affects the universities. However, to turn to Professor Forster's paper for a few minutes, in going through the paper, I found it rather difficult in spite of my best efforts to be mean and nasty and sort of set up a government-university confrontation to disagree in any significant way with his historical treatment of capital funding of Ontario universities. I might have questioned the existence of a residence funding category at 20% as opposed to it being a mortgage and housing thing and I might have wondered whether the interim capital formula ever really generated the capital funds which flowed during its period of operation, rather than merely giving a means of rationally distributing them. But when you come down to it, these are pretty minor matters in what is essentially a good summary of the conditions that existed, and the factors that have led us up to the present.

The first place where I think I'd be inclined to pick up Professor Forster in a somewhat controversial way, is in that part of his paper, wherein his observation that "a decline in real terms of 20% in operating revenue in the last 5 years has not helped, of course", and coupling that with the last three sentences of the paragraph - "investment in the capital and maintenance must be a concern of government. Perhaps a deliberate policy of capital consumption has been adopted. We feel it is short-sighted and self-defeating". This raises several questions; some of fact, and some really just of interpretation. Two points, must arise I think in connection with the comment about the 20% decline in operating revenues. First, of course, this is a valid statement only with regard to operating revenue for full-time equivalent students, not in absolute dollars; quite a different thing than a decline in over-all operating revenues. Secondly, and this is pretty well non-quantifiable as well as being a source of considerable controversy, the level of operating funding being given per student in the 60's and early 70's had to cover, in addition to inflation, the cost of operating new facilities being brought on at a pretty rapid rate. As the capital near-moratorium bit in, the need for this component of funding certainly disappeared. So in this respect, looking at the so-called decline in real terms, one must discount the decline for the no longer present need to provide the operating costs of new facilities in great measure. I really don't know and I don't suspect anyone knows whether this is offsetting 2%, 7%, the whole shebang or nothing. But I think there is a factor involved here that makes us have to regard the 20% as not quite the right approach. When one steps farther though, this raises a whole new question and goes beyond the capital and enters into the operating side. I've been on the hook on this one before. This is the whole question of adjudicating funding and the financial state of the universities on a per student basis. We have what we call the Giannelli Report and other aspects of that, and that's one we've been into before, but I have to throw it out. I'm sure that per student, costs at this

time, if we're going to acknowledge fixed and variable costs, is not the right way to adjudicate progress or regress.

Moving on then, in connection with a suggestion that a short sighted and self defeating policy of capital consumption has been adopted, I would certainly acknowledge OCUA's expressed concern over this. On the other hand, and this is really developed further in Professor Forster's paper, we do not really know what the appropriate rate of investment in capital maintenance should be. In passing, I would note that for the third successive year, special capital maintenance funding out of current funds amounting to between 2½ and 5 million dollars per year has been made available, essentially for smaller projects which are normally regarded as coming out of operating funds. Evidence on the pragmatic side of this question indicates that maintenance needs of the institutions are being quite well met in consequence of this. It is possible, and I recognize that this is a real concern to the Advisory Council, that the smaller repair and maintenance projects are being given higher priority than major capital replacement and renovation projects by the institutions through their submissions to us for capital funding, but the evidence is far from firm. That would be rather a good question to think about. Are we, by taking capital out of operating funds, encouraging institutions to get into the "paste and fix" kind of things, rather than the basic refurbishing of the fabric of the institutions?

In the section called "Factors to be considered in the capital funding policy", Professor Forster discusses means of identifying or assessing the major areas of concern in capital funding; the "one-shot" problem of dealing with "the balance and equity of facilities among institutions", and then the other problems of repair, renovation and maintenance problems. Without offering any comments on the likely size of the capital needs in either area, I would suggest that Professor Forster has, in outlining the elements of a process required to identify

these needs, outlined why the search for a "handy-dandy" formula or a pair of formulae for these two purposes (the one-shot and the recurring maintenance) will not likely be fruitful. This is best illustrated by looking at the steps outlined in determining space requirements. We start with the need for a proxy for space needs. This then broadens into a whole group of proxies where there are different types of students and their needs, as well as different types of faculty and their needs. Then having got the proxies in place, we face the problem of appropriate space standards related to such differing items as library books on the one hand and a biological research worker on the other. Then we complicate this by the varying rates of utilization of space, we wind up with variable space proxies, complicated by varying space standards, and then complicated by variable space usage problems. In the end, I think we wind up in the position that we can develop a conceptual framework of how a formula should be established, but really wind up unable to put one together with specific values that will make it really useful for administrative purposes. And when you turn to the renewal side, I think Professor Forster himself acknowledges that it is even more difficult than it is for the initial one-shot problem of construction. Accordingly, and here I have to identify a clearly personal bias, I would suggest that any attempt to do more than establish the roughest kind of formula for approximating overall capital needs will be unsuccessful. Such an approximation may well be useful for global capital needs but I suspect quite strongly that it just won't work at the lower level of attempting to distribute capital between institutions. In the present situation, I suspect the best a formula could do is to provide a framework or a series of reference points within which subjective assessments can be made. Now, I want to assure you that in making a comment like this, I really shudder inwardly, because it means that we who are within the Ministry, are going to remain squarely on the line with the Minister in attempting to adjudicate between institutional needs and that is not the most happy position to be in. Perhaps representatives of OCUA who are here and have

gone through much of this exercise this past winter will feel the need to comment on this last set of observations because I think their study indicated some of the same thing. It would have been nice to have had a formula to distribute a good chunk of the money on an overall basis but look out when it gets down to specific projects. The statistical process that works fairly well for a large system, may cause some real difficulties coming down to the individual institution.

The last point, which rather bedevils the whole capital renewal question is the matter of whether the repair and maintenance money which I mentioned a bit earlier as being provided these past three years should be kept separate from the major project capital funds, that is the 25 thousand dollar and up projects which go to the Capital Aid Corporation, and also separate from the operating grants to the institutions. I suspect that there is little predisposition on the part of the institutions to see this latter amount made part of the Capital Aid Corporation funding. It's too capricious when that happens. At the same time, while intellectually agreeing that the notion of institutional autonomy and responsibility suggest that they should be feathered into the operating grants and its utilization made part and parcel of the internal priority setting of the individual institution, I'm rather emotionally and viscerally concerned that the internal institutional pressures for improved salaries will leave capital renewal on the short end of the stick.

So I guess really, when I'm all finished, I haven't responded to a number of Professor Forster's considerations and really have only laid out what I think are three questions that we should be discussing. These are, what is and should be the fundamental relationship between running maintenance and capital needs? I'm not sure that we've got that one clarified in our own minds at all. Secondly can and should, particularly in times of financial constraint, a formula be introduced to replace judgement in capital allocation? And then how do

senior university administrators adjudicate between the conflicting claims of faculty and staff on the one hand, and capital or maintenance needs on the other hand? I guess to put it in its most pejorative sense, how really thoroughly do university administrators accept and want to assume the other side of autonomy - that's the responsibility for some tough internal resource allocation problems.

UNIVERSITIES AND RESEARCH

by

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The responsibility for advancing knowledge distinguishes universities from other educational institutions. Although Canadian universities have always endeavoured to fulfil this function, it was not until the late 1960's that they achieved a status in scholarship and research that was reasonably commensurate with Canada's maturity as a nation.

Some statistics will help make the point: in 1960-61, the 305 doctorates earned in all Canadian universities were roughly equal to the number granted at Harvard, which is not a large university by American standards; by 1967-68, this number had reached 1,000 and by the mid 1970's, it had started to level off at about 2,000.

The increased amount of support of university research by the National Research Council during the same period is further evidence of the rapid development of the research capacities of our universities. In 1960-61, the total direct expenditures for university research in Canada by the National Research Council was only \$7.2M, less than the amount received by the University of Toronto alone today; by 1967-68, the level of funding by N.R.C. stood at \$40.3M and by 1974-75, the figure had reached \$58.2M.

This is not the occasion to dwell at any length on the reasons universities must devote major attention to research and scholarship. I believe that they are understood by this audience although clearly not by the general public and often not even by our graduates. A few brief remarks, however, on this important matter are in order.

The first and, I believe, the most important reason universities are engaged in research is the enrichment it gives to teaching. It is a fact that if faculty members, especially those teaching at the senior levels are to arouse the curiosity of their students, examine new knowledge, relate it to that

which is known, and impart it in a lively way in the classroom, seminar or laboratory, these faculty must themselves be working at the forefront of their discipline. Second, graduate teaching and research are inextricably related. The graduate student at the doctoral level, and often at the master's level as well, is an apprentice researcher. In many disciplines, by doing research in association with his professor, the student develops those qualities of imagination, objectivity and critical insight which are indispensable to the solution of difficult problems he will encounter in any of the career paths he may eventually follow. Finally, the results of basic research provide "the foundation for social advance and technological invention". The links, of course, are often tenuous and obscure; there is no way of predicting what may be the practical application of today's most esoteric research. But we do know that the best research is done when first-rate people are given the freedom to follow their interest and intuition. This freedom the university, more than any other organization in our society, is in a position to provide.

Basic research has traditionally been given major emphasis in the research activities of university faculty, even in applied fields such as Engineering and Medicine. There are very good reasons for this: firstly, as has already been stated, it is the kind of research for which universities are especially suited. Basic research is supportive of teaching as teaching is supportive of research. Second, the structure of basic research in Canada, as in the United States, the United Kingdom and a few other Western countries, is such that universities have been given the major responsibility for its execution. There are in this Country very few Government-sponsored research institutes in the Medical Sciences, the Social Sciences and the Humanities located outside the universities. Even in Science and Engineering, the National Research Council laboratories have been moving increasingly into applied research thus vacating basic research fields in favour of the universities. The strength of Canadian science is therefore directly related to the research capacities

of Canadian universities.

Much of the basic research in our universities is motivated simply by the desire to know - the curiosity of the investigator. Nevertheless, there is tremendous scope within universities for what the Science Council has called "oriented basic research",¹ that is, investigation directed toward obtaining basic knowledge which is needed to achieve some social or technological objective. Such work is not only appropriate to a university but faculty are becoming increasingly interested in undertaking it. For universities to reach their full potential for "oriented basic research", however, it will be necessary for both government departments and industry to develop research policies which will ensure adequate funding.

Universities also have an important role to play, albeit a more limited one, in the solution of specific, practical or technical problems. As the A.U.C.C. stated in a Brief to the Prime Minister in 1973, "Precisely because it is a publicly financed repository of enormous talents and formidable skills, the university community must be prepared and willing to devote these assets to the furtherance of public goals, whether in partnership with governments, industry or international agencies".² The Brief goes on to say, "Universities that offer to serve (these needs) must be treated as universities not consulting firms".

There is much evidence since these words were written that both governments and industry are beginning to take advantage of the range of expertise which the university can provide for applied investigation and universities are responding to the challenge. The question of how much work of this kind is possible without distorting the basic functions of a university hardly needed to be asked five years ago; now it is a policy matter of considerable importance. For this reason, the matter will be further examined later in this paper.

Levels of University Research Activity

It is worth repeating that research and scholarship are not only supportive of teaching function of the university but to a major extent are integrated with it. For this reason, many academics strenuously object to any attempt to identify separately their specific costs in analyzing university expenditures. The fact remains, however, that the questions of how much research and how it should be funded cannot be avoided, either by the universities themselves or the governments which support them.

In attempting to answer these questions, it is convenient to consider three different levels of research intensity within a university system and within a single university. The first is that which is essential for sound undergraduate work; it is the commitment to scholarship which would be found in every high quality university, even those whose programs of instruction are restricted to the baccalaureate. Research at this level of intensity, whether or not it leads to publication, is justified entirely on the basis of its contribution to the teaching role of the university and, therefore, it would seem reasonable that it be funded entirely from the regular operating budget. It would be correct to say that in establishing the funding formula for the Ontario university system a decade ago, the value of the B.I.U. and the weights assigned to undergraduate programs recognized and reflected this fact.

The second level of research intensity within a university relates to a commitment to graduate study, particularly programs which have a significant research component. Here it can be argued that since the output of such work makes a major contribution to meeting the research needs of the nation, there should be a sharing of the costs associated with it between the federal and provincial governments. Indeed, this is the case. The federal granting councils through their peer-adjudicated research grants to faculty provide funding to cover, at least in part, the direct costs of graduate student research, while the

provincial government through B.I.U. funding provides for indirect costs and the faculty salary component of this activity. Again, the Province of Ontario in establishing the B.I.U. formula weights recognized the research component costs of graduate training. In addition, both the federal and the provincial governments provide substantial research support through graduate scholarship and fellowship programs.

It was suggested at one time by the Committee of Presidents of Universities of Ontario that the federal government might assume the total responsibility for all post-graduate education in the Country, including student support.³ The argument was that although the BNA Act gives provinces power to legislate with respect to education "in and for each province", post-graduate education and research are clearly "in and for the nation" and therefore should be a federal responsibility. If this was politically unacceptable six years ago, it must be even more so today when more than one provincial government would appear to be taking the position that provincial responsibility must extend to every level of university activity.

The third level of research within universities relates to activities which go beyond those which could be reasonably justified on the basis of educational and manpower training needs alone. It is research carried out by Canadian universities since they have been given a major responsibility for meeting the research needs of the nation. A great deal of the research at this level may be indistinguishable from that related to the educational function of the universities; the distinction is primarily one of intensity, not of kind. For example, a million dollar accelerator program in nuclear physics may involve no more than a handful of graduate students with most of the output resulting from the work of post-doctoral fellows, research associates and technicians under the supervision of faculty. Also belonging to this category is applied research directed toward the solution of practical problems, work which may not be a suitable vehicle for the training of graduate students. It is

carried out within a university because that is where the expertise resides.

It is in the funding of research at this third level that the greatest problems have arisen. If it is basic research, the direct costs usually will be covered although often not in their entirety, by the peer-adjudicated awards of the federal granting councils. There remain, however, the indirect costs which amount to some 50 per cent of the total when overhead costs and faculty salaries are included, and these have been covered by general operating budgets. Even when strictly applied research is involved, funding has hitherto been either in the form of grants without overhead or, at best, under contract with a partial overhead allowance.

Under the present system of university financing in this Province, the general operating revenues of each university are determined by the number and mix of its students. As a result, student numbers, especially of Ph.D. students for whom the formula weight is relatively high, serve as a basis for calculating the cost of all research as well as for instruction. This system of provincial government funding of overhead and faculty salary costs associated with the total research effort was never very satisfactory. The problem was not, however, particularly serious throughout the 1960's because the federal government's support of university research in the sciences, including Engineering and Health Sciences, was increasing very rapidly and growth in doctoral enrolment paralleled expansion of the research role of Canadian universities. The situation today is quite different. Doctoral enrolment has started to decline, especially in the sciences, and the formula income derived from such students has declined proportionally. For example, in 1975-76, the total full-time Ph.D. enrolment in Chemistry and Physics in Ontario universities was less than two-thirds that in 1970-71, 464 compared to 722. Yet, the total research effort in these disciplines probably has not decreased significantly, especially since many of the very able young

faculty recruited during the period of rapid expansion in the 1960's have now matured as research scientists. It is now quite clear that the graduate student count has become totally inadequate as a proxy for university research costs. Universities are now forced to allocate general revenues to support their overall research efforts, a good deal of which extends well beyond that justified by their educational function. Paradoxically, they must draw on money which should be allocated to teaching. The Committee of Presidents of the Universities of Ontario expressed concern about this distortion of budget priorities almost ten years ago;⁴ the situation is much more critical in 1977.

Later in this paper a system of funding will be proposed to assist in the resolution of this problem.

Changing Levels of Sponsored Research Funding

Since 1970-71 the Committee of Finance Officers - Universities of Ontario (COFO-UO) has prepared detailed reports on the revenues and expenses for the provincially-assisted universities of Ontario. This information, together with enrolment data reported to the Ministry of Colleges and Universities, permit an analysis of the level of sponsored research funding for a six year period extending to 1975-76.

Table I shows the total annual sponsored research income in the Ontario universities by source: Federal Government, Provincial Government and Other.

Of the federal funds, in 1974-75, some 74 per cent was provided by the three granting councils, the Canada Council, the National Research Council and the Medical Research Council, an additional 5 per cent from the Department of National Health and Welfare and smaller amounts from the Defence Research Board, Department of the Environment, Department of Industry, Trade and Commerce, Department of Agriculture, Ministry of Transport,

Ministry of State for Urban Affairs, Canadian International Development Corporation and a number of other sources.⁵ There is little evidence that departments of the federal government are transferring any significant amount of their research effort from in-house to the universities, government policy statements to the contrary. In fact, it will be noted from Table I, that the federal government's share of the total sponsored research funding has declined significantly, from 74.1 per cent in 1970-71 to 65.1 per cent in 1975-76.

The contribution by the Ontario government to the funding of sponsored research in its universities has not changed appreciably since the beginning of the decade, continuing to amount to some 6 per cent of the total. Unfortunately, neither the Ontario government nor COFO-UO has compiled statistics on the source of provincial sponsored research funding by ministry or agency.

It will also be noted from Table I that there has been a substantial increase since 1970 in the funding for research by agencies other than those of the federal and provincial governments. Their share has risen from \$11.2M or 19.6 per cent of the total in 1970-71 to \$25.3M or 28.4 per cent of the total in 1975-76. This category of funding includes grants from foundations, some of which obtain support from the Ontario government, private donations, grants and contracts from the industrial sector and a variety of other sources. One factor contributing to the increase is the increasing involvement of faculty in carrying out consulting activities through contracts written in the name of their university rather than by private arrangements.

The change over the six year period in sponsored research funding from each of the three sources, expressed both in actual and constant dollars, is shown graphically in Chart I. It is evident that total funding for sponsored research in Ontario universities, after allowance has been made for inflation, has

TABLE I

Total Sponsored Research Income in the
Ontario Universities¹

(actual, stated in millions)

	<u>Federal</u>		<u>Provincial</u>		<u>Other</u>		
	<u>Amount</u>	<u>% of Total</u>	<u>Amount</u>	<u>% of Total</u>	<u>Amount</u>	<u>% of Total</u>	<u>Total</u>
1970-71	42.4	74.1	3.6	6.3	11.2	19.6	57.2
1971-72	44.9 ²	75.3	3.0 ²	5.0	11.7 ²	19.6	59.6 ²
1972-73	47.2	73.5	4.0	6.2	13.0	20.2	64.2
1973-74	49.8	71.1	3.3	4.7	16.9	24.1	70.0
1974-75	53.0	66.3	4.8	6.0	22.2	27.7	80.0
1975-76	58.1 ³	65.1	5.8 ³	6.5	25.3 ³	28.4	89.2 ³

1. Annual Reports of the Committee of Finance Officers - Universities of Ontario.
2. COFO-UO Report data for 1971-72 are for a ten month year and have been multiplied by 1.2.
3. Data of the Ontario Institute for Studies in Education and Ryerson have been subtracted from 1975-76 summary to ensure comparability with previous years.

remained essentially constant, with an increase in the "Other" category compensating for a decrease from federal sources. A somewhat similar pattern is found for Canada as a whole except that it is an increase in provincial funding which has compensated for a decline at the federal level.

It is useful to examine as well changes in sponsored research funding in relationship to total university operating income during the period covered by the COFO-UO Reports. To place this in perspective, however, it is necessary first to consider trends in the total operating income per full-time equivalent student both in Ontario and in the Country as a whole. This is shown in Table II. It will be noted that, in constant dollars, the operating income per full-time student in Ontario has decreased by 22 per cent over the six year period while increasing slightly for Canada as a whole.⁶

Table III shows sponsored research income in the Ontario universities from each of the three sources, Federal Government, Provincial Government and Other, expressed as a percentage of the total operating income. The change over the six year period has been relatively small, dropping from 12.3 per cent in 1970-71 to 11.7 per cent in 1975-76. The trend over a much longer period has been published by Statistics Canada.⁷ Unfortunately, the two sets of data are not strictly comparable since some additional institutions have been included in the Statistics Canada compilation. This compilation covering the period 1966-67 to 1974-75 shows, however, a decrease in sponsored research funding as a percentage of total operating income (excluding ancillary enterprises) from 15.4 per cent in 1966-67 to 12.7 per cent in 1974-75. The difference of 2.7 per cent amounts to some \$20M in 1974-75 dollars.

Two additional relationships are helpful in examining changes in sponsored research funding in the context of the total university effort. The first is the amount of sponsored research funding, expressed in constant dollars, per full-time

CHART I

SPONSORED RESEARCH INCOME
IN ONTARIO UNIVERSITIES
1970/71 - 1975/76

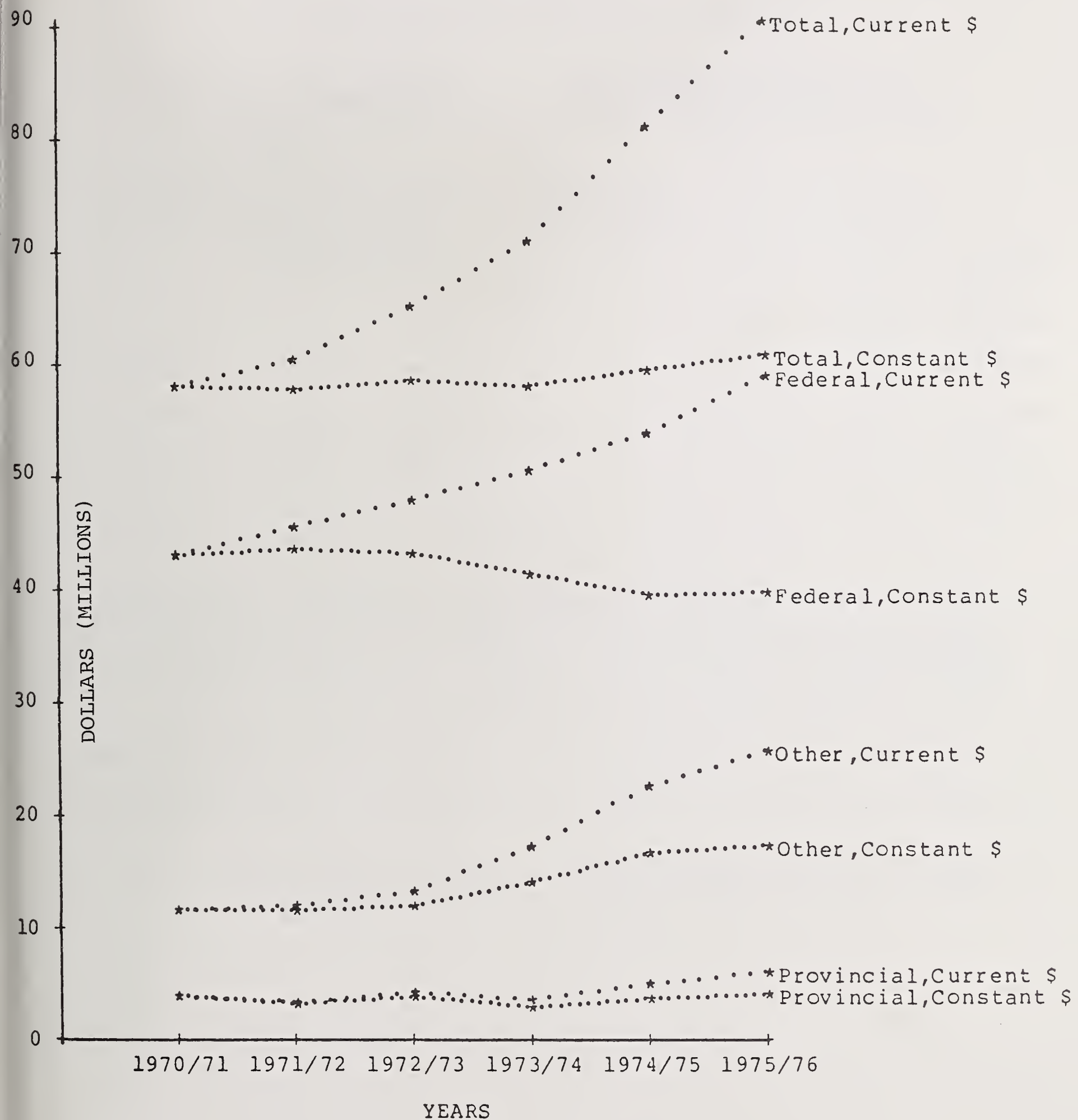


TABLE II

Total University Operating Income per Full-Time
Equivalent Student for Canada and Ontario

	<u>Total Operating Income per FTE</u>			<u>Total Operating Income per FTE</u>		
	<u>CANADA¹</u>			<u>ONTARIO²</u>		
	<u>Actual \$</u>	<u>Constant \$</u>	<u>Relative to 1970-71</u>	<u>Actual \$</u>	<u>Constant \$</u>	<u>Relative to 1970-71</u>
1970-71	3,297	3,297	100	3,879	3,879	100
1971-72	3,671	3,508	106	3,941 ³	3,766	97
1972-73	3,819	3,442	104	3,834	3,455	89
1973-74	4,209	3,437	104	3,949 ⁴	3,225	83
1974-75	4,495	3,299	100	4,165 ⁴	3,057	79
1975-76	5,031	3,388	103	4,467 ⁴	3,008	78

1. Statistics Canada, University Statistics 1971-72 to 1974-75, (Ottawa, 1977); Report of the Canadian Association of University Business Officers' Accounting Research Committee as summarized by Statistics Canada, February 28, 1977. Income from ancillary enterprises has been excluded. A correction has been made to 1970-71 to exclude non-C.A.U.B.O. institutions.
2. Annual Reports of the Committee of Finance Officers - Universities of Ontario
3. COFO-UO Report for 1971-72 is for a ten month year and has been multiplied by 1.2.
4. Income for Wilfrid Laurier, O.I.S.E. and Ryerson has been subtracted from COFO-UO summaries to ensure comparability with previous years.

TABLE III

Sponsored Research Income in Ontario Universities
as a Percentage of Total Ontario University Operating Income

	Total University Operating Income <u>(in millions)</u>	Sponsored Research as a Percentage of Total University Operating Income			
		<u>Federal</u>	<u>Provincial</u>	<u>Other</u>	<u>Total</u>
1970-71	464.6	9.1	0.8	2.4	12.3
1971-72	533.6	8.4	0.6	2.2	11.2
1972-73	547.1	8.6	0.7	2.4	11.7
1973-74	590.8	8.4	0.6	2.8	11.8
1974-75	671.8	7.9	0.7	3.2	11.8
1975-76	763.9	7.6	0.8	3.3	11.7

equivalent student. This is shown graphically in Chart II for both Canada and Ontario, where it is seen that for Ontario there has been a decrease of 22 per cent during the six year period, from \$474 in 1970-71 to \$368 in 1975-76, expressed in 1971-72 dollars. The second relationship is sponsored research funding, expressed in constant dollars, per full-time equivalent faculty member. Here the change is less dramatic, showing a 9 per cent drop during the five year period, 1971-72 to 1975-76, for which data are available. This smaller decrease, of course, parallels the decrease in staff-student ratios which has taken place during this period.

Distribution of Sponsored Research Funds Amongst Universities

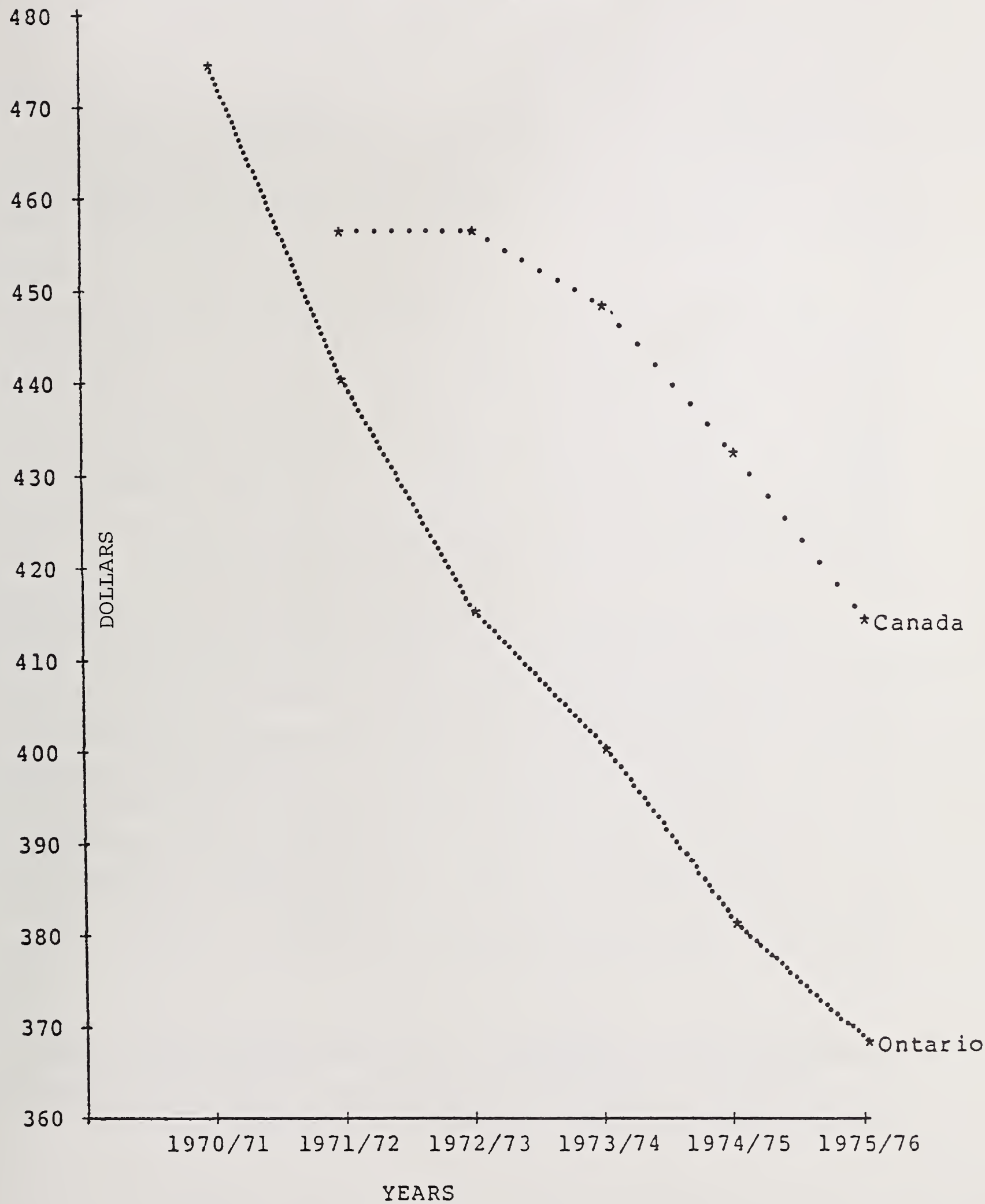
Of the forty-seven Canadian universities receiving support from one or more of the federal granting councils in 1975-76, approximately thirty offer work at the Ph.D. level. Despite what would seem, for a country of Canada's size, to be a relatively large number of institutions engaged in graduate education at the highest level, there is a remarkable concentration of research effort. Over 50 per cent of the total funding by the three councils was received by six institutions (Toronto 14.9 per cent, McGill 9.3 per cent, British Columbia 8.1 per cent, Montreal 6.8 per cent, Alberta 6.8 per cent, McMaster 5.7 per cent).

In Ontario, almost 70 per cent of the federal research council funding in 1975-76 was accounted for by four institutions (Toronto 35.1 per cent, McMaster 13.6 per cent, Western 10.3 per cent and Waterloo 9.8 per cent) although ten offered work at the Ph.D. level in a range of programs.⁸

The most complete picture of the distribution of all sponsored research funding in the Ontario universities is provided by the COFO-UO Reports. Table IV shows for each institution the amount of sponsored research funding both in dollars and as a percentage of the total for the year 1975-76. In addition,

CHART II

TOTAL SPONSORED RESEARCH PER FTE STUDENT
(IN CONSTANT DOLLARS)
1970/71 - 1975/76



sponsored research funding as a percentage of total operating revenue (excluding ancillary enterprises) is given for each institution for the years 1970-71 and 1975-76. Here it is seen that sponsored research funding at three institutions, Toronto, McMaster and Western, constitutes some 60 per cent of the total while two more, Waterloo and Ottawa, bring the amount to almost 75 per cent. A word of caution, however, must be used in relating these amounts directly to the total research effort in an institution since universities with Faculties of Medicine or a large Faculty of Engineering would be expected to receive higher levels of research funding than institutions emphasizing the Arts disciplines.

The figures expressing sponsored research funding as a percentage of total university operating income are especially interesting since they provide a rough measure for comparing the relative emphasis which each institution gives to research. Again, it is seen that three institutions head the list with McMaster at 20.1 per cent, Toronto 14.5 per cent and Western 14.0 per cent in 1975-76, while Waterloo at 11.4 per cent and Guelph 11.2 per cent constitute an intermediate group.

A further comparison of the percentage for each institution from 1970-71 to 1975-76 reveals some interesting changes. It is not surprising to see a substantial decrease in the level of funding in the smaller institutions since with no doctoral students, their faculty are at a serious disadvantage in competing for increasingly limited funds awarded by the councils. More surprising, however, is the sharp reduction of research funding as a percentage of total operating income at Queen's, from 16.0 per cent in 1970-71 to 8.7 per cent in 1975-76, and in Toronto, from 17.4 per cent in 1970-71 to 14.5 per cent in 1975-76.

It is useful to compare for each institution its sponsored research income, expressed as a percentage of the total sponsored research funding in the Province, with graduate B.I.U.'s,

TABLE IV

Sponsored Research Funding in Ontario
by University

<u>University</u>	<u>Amount</u> <u>(in millions)</u>	<u>Per cent of</u> <u>Total</u>	<u>Sponsored Research as a Per cent</u> <u>of Operating Income'</u>	
	<u>1975-76</u>	<u>1975-76</u>	<u>1970-71</u>	<u>1975-76</u>
Toronto	29.3	31.9	17.4	14.5
McMaster	13.0	14.2	19.4	20.1
Western	12.1	13.2	13.9	14.0
Waterloo	6.9	7.5	11.3	11.4
Ottawa	6.8	7.3	8.9	10.6
Guelph excl. O.M.A.F.	5.8	6.3	11.9	11.2
Queen's	5.1	5.6	16.0	8.7
York	3.7	4.0	7.7	5.8
Carleton	3.4	3.7	6.2	7.9
O.I.S.E.	1.7	1.8	not available	12.5
Windsor	1.5	1.6	6.0	4.7
Ryerson	1.0	1.1	not available	0.3
Lakehead	0.7	0.8	3.1	5.2
Laurentian	0.3	0.4	3.2	2.5
Brock	0.3	0.4	4.9	2.6
Trent	0.2	0.3	5.0	2.4
Wilfrid Laurier	0.1	0.1	not available	0.8
Total	91.9	100.0	Average 12.1	10.7

1. The percentages shown differ from those of Schedule 3B of the 1975-76 COFO-UO Report since revenue from ancillary enterprises has been removed from the operating revenue of each institution.

expressed as a percentage of the provincial total of graduate B.I.U.'s for the year 1975-76. The former provides an indication of the relative emphasis given to research by institution while the latter, as has been stated, is being used as a form of proxy for research costs in determining the provincial contribution through regular operating grants. These percentages are shown in Table V for the ten universities offering work at the doctoral level.

Although these relationships must be interpreted with caution, especially with respect to institutions emphasizing research in non-laboratory programs, nevertheless comparisons of the two sets of figures provide strong support for the contention that graduate numbers alone provide a very inadequate proxy for research costs.

We should also ask whether this concentration of sponsored research support and, therefore, of overall research effort in a relatively few institutions is desirable or not. From the point of view of the quality and productivity of the research programs, the answer must be in the affirmative, especially in laboratory-based disciplines in which the cost of equipment and critical size are important factors. On the other hand, to reduce still further research funding in the other institutions would have serious consequences on the quality of their teaching especially at the graduate level.

It has been argued that graduate work at the doctoral level should be restricted to fewer than ten institutions. Indeed, if one were designing a university system for Ontario ab initio this undoubtedly would be one of the characteristics of the system which would be different. But to terminate at this time well-established graduate programs of acceptable quality in the interests of research efficiency would be so demoralizing and disruptive for the universities involved, that any overall benefit would be very much in doubt.

TABLE V

Comparison of Assisted Research Funding
with Graduate B.I.U.'s by Institution

	Sponsored Research Funding % of Total	Graduate B.I.U.'s % of Total
Toronto	31.9	26.9
McMaster	14.2	9.1
Western	13.2	8.9
Waterloo	7.5	8.6
Ottawa	7.3	9.3
Guelph	6.3	4.1
Queen's	5.6	6.6
York	4.0	8.4
Carleton	3.7	5.7
Windsor	1.6	3.5

A Model for Funding Research Costs

In developing such a model we must keep constantly in mind the close relationship between university teaching and research. It is, therefore, not a very meaningful exercise to attempt to separate costs of the two activities either within a single university or for the system as a whole. Nevertheless, it is a fact that several of the Ontario universities have assumed a role in research which extends well beyond that required to meet their teaching responsibilities and the costs of this research must be met. Furthermore, both levels of government have a responsibility to see that the research capacity of the university system is sufficient to meet both provincial and national needs. Decisions, therefore, must be made concerning the sharing of research costs between the two governments.

In the following paragraphs, an approach to cost sharing is presented in the context of the three levels of research intensity described earlier in this paper. In doing so, it is fully recognized that the division of research into the three levels is quite arbitrary and is justified only on the grounds that it provides a convenient conceptual framework for arriving at a rational system for cost sharing. There is nothing novel about these proposals; indeed they are little more than an elaboration of the principles presented in the Report of the Commission on Post-Secondary Education in Ontario a few years ago⁹ and the more recent proposals developed by Macdonald.¹⁰

(1) Funding of research associated with undergraduate teaching

This should remain the responsibility of the provincial government and, as present, should be funded from the B.I.U. income derived from undergraduate student numbers.

(2) Funding of research associated with graduate work

Since the output of such research contributes in a major way to meeting the research needs of the nation, the federal government and other research sponsoring agencies should assume the direct costs, as they do now; but they should also fund the indirect costs, exclusive of faculty salaries, of such work.

Almost every study of university research funding which has been carried out during the past two dozen years (Bladen, 1965; Macdonald, 1969; Lamontagne, 1972; Bonneau and Corry, 1972) has urged that the federal government provide for the indirect costs of the research that it sponsors. The excuse for not doing so has been that federal government under the Fiscal Arrangements Act already pays 50 per cent of the costs of post-secondary education. This has always been of doubtful validity; it will disappear entirely if the amendments to the Fiscal Arrangements Act now before Parliament are passed. All other costs associated with graduate instruction and research should remain a provincial responsibility.

(3) Funding of research beyond the level required for teaching

This is the category in which the questions of how much research and how its costs should be shared become especially difficult to answer. In the case of contract research directed toward the solution of some immediate and practical problem, then the total costs, including salaries, should be paid by the contracting agency whether this is a department of the federal government, the provincial government or industry. On the other hand, the costs of basic research at this level, whether mission-related or not, should be shared between the sponsors of the research, usually the federal government and the province; the former because of its broad national interest in the output of the research and the latter because of a provincial responsibility for the overall quality and research capacity of its universities.

Here again a reasonable division would be for the province to assume the responsibility for funding faculty salaries and for the sponsor to fund all direct costs and indirect costs, exclusive of salaries. In global amount, the province's contribution could be related to the total sponsored research funds received by the universities. Since university research cost studies in a number of jurisdictions indicate roughly a relationship of direct costs: indirect costs (excluding faculty salaries): faculty salaries of 3:1:2, it follows that under such a scheme the provincial contribution through funding of faculty salaries would be one-third of the total costs of the research or two-thirds of the direct costs provided by the sponsoring agencies. This does not seem an unreasonable division of funding responsibility between the two beneficiaries.

To obtain some estimate of the amount of provincial funding which would be required under such a scheme, it is necessary to establish a figure for the percentage of the total sponsored research income which might appropriately be designated as funding for research in the level 3 category. While this figure must be fairly arbitrary, it can be defended, if only on the basis that any allocation should result in a better system of research funding than one related to student numbers.

Drawing on an intuitive impression of research activities across the disciplines, viz., Science, Engineering, Medicine, Social Sciences, Humanities, etc., it would seem not unreasonable to allocate in the model 50 per cent of sponsored research funds to level 3 research. Of the approximately \$100M of sponsored research funds to be received by the Ontario universities in the 1977-78 year, about 12 per cent is totally-funded contract research (excluding the Ontario Ministry of Agriculture contracts at Guelph). It follows that 50 per cent of \$88M, or \$44M, would be the sponsored research monies allocated to the level 3 category. The provincial support required under the model to fund the faculty salary costs associated with the research whose direct costs are \$44M would be two-thirds of this amount or \$29M.

Not all of this, however, would be new provincial money since income derived from graduate student enrolments would no longer be the source of funding for level 3 research. For example, the formula weight for the 4,500 second-stage doctoral students currently in course might be reduced from six to four, resulting in a saving of some \$20M. Also, at such time as the federal government were to pay the indirect costs of the level 2 research which it supports, some further reduction in graduate funding might be justified.

The final question concerning the funding of level 3 research is the method of distribution of the global amount of provincial research funding to individual universities. Clearly, this distribution must be based on informed judgements concerning research quality and productivity. A proposal for accomplishing this has been put forward recently by Macdonald who has suggested the defining for each of the major disciplines, Science, Social Sciences, Humanities, a research income unit which is related to so many dollars of sponsored research income.¹¹ Other approaches might serve equally well. What is important, however, is that the province should take full advantage of the existing peer-adjudicated systems of research funding rather than attempting to establish its own quality review processes.

Applied Research

The past few years have seen a rapid increase in the amount of university research carried out under contract. Most of this belongs in the category of applied research although some can properly be described as "oriented" basic research and as such differs very little from research funded by grants. Probably McMaster University's experience is quite typical: in 1970-71, our contract research amounted to \$266,000 or 4.4 per cent of the total sponsored research; in the current year, contracts amounted to \$1.1M or 9.6 per cent of the total.

For the Ontario system as a whole, excluding O.I.S.E. and Ryerson, contract research amounted to approximately \$11M or 12 per cent of total sponsored research. This does not include research at the University of Guelph which is carried out under contract with the Ontario Ministry of Agriculture. Of the total, approximately 54 per cent are contracts with federal government departments or agencies, 13 per cent with the provincial government and 33 per cent with non-governmental agencies, principally industry.

There are a number of reasons for the recent increase in contract research in the universities. Sponsors, both governmental and industrial, are becoming increasingly aware of the breadth of research skills within the universities and the extent to which these can be directed to applied problems. The essential freeze on funding from granting councils has caused university investigators to become more aggressive in seeking funds from other sources. There is also an increased interest, especially among younger academics, in undertaking studies related to immediate national needs. Finally, industry has recognized that it is often far cheaper to contract work to universities than to maintain the required expertise in-house. These and other factors can be expected to continue to increase university involvement in applied work.

We must now consider the question which inevitably arises: how much work of this kind may a university undertake without distorting its fundamental missions of teaching and basic research? Is \$11M or 12 per cent of the total research funding and 1.5 per cent of the total operating budgets of the universities in 1975-76 too much? It would hardly seem so. In fact, it could be argued that governments and industry have barely tapped the research potential of the universities. Indeed, Ontario's universities can devote much more of their overall effort to applied research without distorting their fundamental purpose. Moreover, it must always be kept clearly in mind that the universities have been given almost the sole

responsibility for basic research. If they neglect this responsibility, there will be no compensating or comparable activity elsewhere in Canada. Furthermore, basic research is usually more supportive of the universities' teaching role than applied work, although this varies greatly from one discipline to another.

Nevertheless, there are a number of guidelines which should be followed by universities in undertaking contract research. First, wherever possible, the work should add in a significant way to the accumulated experience of the principal investigator and contribute to his intellectual development. If these benefits do not flow from the work, then the university must be satisfied that the required expertise is not available elsewhere. Universities are not and must not become consulting firms nor should they enter into competition with such organizations. To do so would only distort their purpose while undermining commercial activities which will provide employment for their graduates. The line is not always a clear one but universities should be on guard against entering into contracts simply to augment their budgets or to line the pockets of their faculty. One more word: unless the work is supportive of teaching, especially at the graduate level, it should be fully funded.

Jurisdictional Matters

The case for a continuing strong federal presence in higher education, and especially in the realm of research, has repeatedly been made by the A.U.C.C.¹² In 1966, the federal response was strongly positive when at a Federal-Provincial Meeting, Prime Minister Pearson stated the following:

If this country is to have an active and vigorous research program which will redound to the advantage of all its citizens and add effectively to our fund of knowledge, government at any level must feel free to sponsor and support research of any kind without being limited by conceivable legal classifications of its results or its end use.

Failure by the federal government to play its full share in such a national task could only mean that Canada's ability to take part in the undertakings of today which are shaping the world of tomorrow would be seriously impaired.¹³

A weaker position appeared to be taken by Prime Minister Treau some ten years later when, in June 1976, he presented to a Conference of Federal and Provincial First Ministers the federal government's proposals regarding cost sharing in health and post-secondary education.¹⁴ In fact, no direct reference is made to research throughout the statement.

During this period the provinces, and not only Quebec, have become increasingly concerned about the decisions taken by the federal government's research-sponsoring agencies since these decisions have significant implications for university planning both at the individual institution and the system level. This concern culminated in a statement on January 11, 1974 by the Council of Ministers of Education that there should be a "partnership" between the federal government, the provincial governments and the universities in research matters. The Ministers went on to say that in areas of federal responsibility as delineated by the constitution, the federal government should consult with the provinces "to assure a balance of activities within a university and between universities within a province". In areas of joint federal-provincial responsibility, there should be joint consultation and decision-making "to secure a provincial input and active participation in the determination of priorities". Finally, in areas which are constitutionally the responsibility of provinces, such as education and natural resources, provincial consent should be required. They concluded by stating:

Another important element of the Minister's position is that provincial policies for higher education be respected and that the development plans of the universities as approved by the provincial authorities be also respected when federal funds are made available for research.

This statement of the Council of Ministers was understandably received with some alarm by the universities who were especially concerned that such a policy might undermine the traditional role of the federal granting councils in funding basic research. Yet, on examination, the position taken by the Ministers was not unreasonable, provided that effective means of consultation are established among the three partners and flexibility is shown in its implementation.

It must be recognized that research funding by the federal government has important financial implications for the provinces and, indeed, can affect very significantly the "balance of activities within a university and between universities within a province". This is especially true when a federal government agency decides to fund a major new program of research, for example, through the award of a Negotiated Development Grant.

In Ontario, substantial progress has been made in recent years in the planning of graduate studies, especially at the doctoral level. This has been achieved through the mechanism of the Advisory Committee of Academic Planning (ACAP), a committee of the Council of Ontario Universities. ACAP has undertaken assessments of research strengths and research needs, both within individual universities and for the university system as a whole. Such assessments are important components of university planning and it is essential that major research funding decisions also be compatible with it.

An important step in the implementation of the partnership principle may have been taken late last year in the formation of the Canadian Committee on Financing University Research under the Chairmanship of the Secretary to the Ministry of State for Science and Technology. The federal representatives on the Committee include the heads of the three granting councils, while the provincial representatives comprise deputy ministers responsible for universities as well as university presidents or vice-presidents.

If the Committee can effectively fulfil its terms of reference, namely "to exchange information and to develop recommendations on policies, programs and procedures affecting the financing of research in universities",¹⁵ the results should be extremely beneficial. In the context of this paper it is especially interesting to note that the Committee at its first meeting decided to examine the matter of the costs of university research.

ENDNOTES

1. Science Council of Canada, Policy Objectives for Basic Research in Canada, (Information Canada, Ottawa, 1972), pp. 18-19.
2. A Brief to the Prime Minister of Canada from the Committee of Executive Heads of the Association of Universities and Colleges of Canada, April 2, 1973, p. 10.
3. Toward 2000, The Future of Post-Secondary Education in Ontario, A Report to the Commission on Post-Secondary Education in Ontario from the Committee of Presidents of the Universities of Ontario, (Toronto: McClelland and Stewart, 1971), p. 134.
4. Ibid, pp. 131-132.
5. Statistics Canada, University Financial Statistics 1971-72 to 1974-75, (Ottawa, 1977), p. 42.
6. This observation is in accord with a recent study by the Council of Ontario Universities which shows that in terms of the provincial grant component of operating revenue per F.T.E. for each of the ten provinces in 1975-76, Ontario ranks eighth and \$418 below the Canadian average. (Council of Ontario Universities, Operating Grants Brief to the Ontario Council on University Affairs, April, 1977).
7. Dominion Bureau of Statistics, Canadian Universities Income and Expenditures, 1967-68, April, 1971, pp. 38-41; Statistics Canada, University Financial Statistics 1971-72 - 1974-75, January 1977, p. 44.
8. N.R.C. Information Exchange Centre for Federally-Supported Research in Universities, Directory of Federally-Supported Research in Universities 1975-76, (Ottawa, 1976).
9. The Learning Society, Report of the Commission on Post-Secondary Education in Ontario, (Toronto, 1972), pp. 141-143.
10. J. B. Macdonald, The Canadian Journal of Higher Education, Volume III, 1973, p. 157.
11. Ibid, pp. 168-173.
12. Association of Universities and Colleges of Canada, A Canadian Policy for Universities and their Financing, A Brief to the Prime Minister of Canada and to the Premiers of the Province of Canada, January 1976.

13. Statement by the Prime Minister for the Federal-Provincial Meeting, October 24, 1966, pp.26-27.
14. Established Program Financing: A Proposal Regarding the Major Shared-Cost Programs in the Fields of Health and Post-Secondary Education, June 14-15, 1976.
15. Joint Announcement by the Chairman of the Council of Ministers of Education and the Minister of State for Science and Technology, November 2, 1976.

DISCUSSION - J. G. Parr

The comments I have to make were made in a slightly different form at the time when I was a Dean, some years ago. The fact that they haven't changed too much is susceptible to more than one interpretation.

I'd like to start with Dr. Bourns' comments that begin on the first page. I'll repeat this: "The first and I believe the most important reason universities are engaged in research is the enrichment it gives to teaching. It is a fact that if faculty members, especially those teaching at the senior levels are to arouse the curiosity of their students, examine new knowledge related to that which is known and imparted in a lively way in the classroom seminar or laboratory, these faculty must themselves be working at the forefront of their discipline".

I don't think that is a fact. I think it's an opinion; and if by working at the forefront, Art means (and I think he implies it) being at the forefront via research, there seem to be as many opinions con as pro. Indeed, research in the Humanities has at times been cited as counter-productive to humanistic learning and university endeavours generally. Here is what Jacques Barzun said on the subject a few years back. "It's not as if the system required one to be a great scholar or a good scholar, or even a scholar at all. It only requires that one produce research, which being translated means publish papers. The papers are merely asked for as evidence of professional discipline justifying one's existence and promotion. And at the same time research can be given as an excuse for neglecting the interests of the students or of the university".

Now I realize that as the paper moves on, Dr. Bourns moderates the requirement of the "forefront"; and, indeed, his first level of research is a commitment to scholarship, whether

or not it leads to publication, I won't argue with that, except to repeat that I don't think publication is much of a criterion anyway.

But I do have to comment about the second level of research, which in part relates to "a commitment to graduate study". I'd like to tackle this on a broad front. First it's argued that "such work makes a major contribution to meeting the research needs of the nation". And I ask myself what are the research needs of the nation? Perhaps these can be identified in some of the sciences; but if they're clearly identified they perhaps move into the third category of research. As I try to relate the research needs of the nation and a commitment to graduate study I look at some fairly recent Ph.D. theses - "The Brillouin Spectrum and Elastic Constants of Para-hydrogen". I suppose one could determine whether or not there was a national need for that. But it's a bit more difficult when we come to "A Perspective Study of Relationships between Pre-natal Maternal Parameters and Early Infant Development". I'm even in greater difficulties when I relate the nation's needs to "Imaginative Engagement in the Last Plays of Shakespeare" or "The Lyric Style of Inorkenti Anensky", whom we all know was a late 19th century Russian poet.

I have to suggest that if we had twice as many professors as we have now, there would be a greater need for research. If we had half as many, we would know no other than to expect less. We equate need with supply.

This kind of research - research of value to Canada - is associated with graduate studies; and this recalls a statement which still rings in my mind. It was made by Professor Gauvain, at McGill, who described graduate students as, "The foot soldiers of the professor". I don't deny the value and virtue of graduate students enjoying the brilliance, the supervision or perhaps even just the proximity of a Northrop Frye or a Gerhard Hertsberg, or (and I do mean this Art) an Art Bourns.

But that's not the way it happens. Professors in institutions with graduate schools expect - and they generally get - graduate students. And in the Sciences, graduate students are the foot soldiers, who slug it out under commands of variable competence.

This brings me to the quality of research. But before I move to that, perhaps I could just remind you that so far I have been critical of more tangible aspects. The first question was about the suggestion that teaching is enriched by research; the second, the assumption that what is good for the sciences is good for the non-sciences; and third, I question whether there are definable research needs and I offer the suggestion that the needs are generally assumed to equal the supply.

Now to quality. It seems to me that the funding of the first and second levels of research described by Art in his paper can only be justified if there is some assurance of quality. I'm assuming, perhaps with undue optimism, that the third level of research can be effectively appraised. But the first and second levels are costly enough. I would guess it's in the order of \$100 million of public money in terms of equivalent salaries and so on. Perhaps a little more. And I don't think publications are a criterion, because the number of journals expands to accommodate the number of submissions. Here's what David Suzuki said about this very recently: "Many papers are simply repetitions of other's work, but with research on a different organism or system, or they represent miniscule refinements of measurements or models. Journals too can be classed on the basis of quality. I'm afraid the Canadian journals with which I'm acquainted are very low on the international scale. Places where pot-boilers or rejects from more reputable journals can be dumped for a longer list of publications. How many papers we publish really merit someone else's time. In fact, how many papers do we read? How many journals do we even look at?"

But I think Dr. Bourns and I agree that reflective enquiry, (if I can use that phrase from the well-known report by Bonneau and Corey) does not and should not lead to publication. It should produce better teaching. But then I have to ask, is the improvement in teaching identified? If it's identified, will it combat published research in front of committees of promotion and tenure? I rather think that even among people who would prefer to be reflective enquirers there's a compulsion to do publishable research. And publishable research is expensive not only on account of its salary component, but because it has been conned into extravagant equipment; and publishable scholarship appears to require a pretty costly duplication of library material.

Let me try and bring quality and quantity together. But in so doing, I will separate the Sciences from the non-Sciences. I think if you trace the history of the Humanities and possibly the Social Sciences, you'll find that their university scholars have been seduced into a type of research that Barzan describes.

Turning to the Sciences, we have a situation where the nagging argument about inadequate funding gives little heed to quality, but generally asks for more funds. The good researcher suffers, as Art suggested: the poor researcher is uncomfortable - or he should be; and the graduate student is the unwitting casualty among the infantry.

I don't think that the suggestions for dividing the money bag really come to grips with the basic questions. Let me summarize what I think they are. First, how much research: surely not that indiscriminate amount which varies with the size of the professorial establishment. Second, what sort of research? Third, for whose benefit is the research? Fourth, what are the measures of quality? Fifth, what are the rewards for reflective enquiry? Sixth, by what means are graduate students assured of being more than foot soldiers?

I don't think they're unreasonable questions, because they are questions that a researcher would ask himself if he were tackling any other kind of problem. For instance, if the paper were about energy requirements, here are the parallel questions. How much energy is necessary? Surely not that indiscriminate amount which people are willing to consume. Two, in what form is the energy? Three, for whose benefit? For those with three cars or for farmers or for industry? Four, what are the measures of efficient energy use? Five, what are the rewards for low energy consumption and self-sufficiency? Six, by what means is the populace assured of equitability?

As I run to the end, let me offer a few suggestions that might contribute to the answers to the questions I've implied. First, I think the general proposals of Corey and Bonneau are still valid. I believe it's important to recall, however uncomfortable it is, their comment, "a significant fraction of university research is of indifferent quality". Second, faculty might be encouraged to present a profile of their abilities so that they could be rewarded on the basis of their competence in those pursuits to which they give a high profile. Third, those faculty who rate frontier research high on their profile might be expected to demonstrate at least five years of independent research appraised by impartial referees before they have a responsibility for directing the research of others. Fourth, I would think all research topics should be appraised within the university or using outsiders. Splendid researchers should of course be given freedom of choice but anyone less than excellent might be required to contribute to the work of an established team. Fifth, equitable reward systems should be introduced so that the people who are reflective enquirers don't suffer when they try to move into full professorship. Sixth, the entry of graduate students should be better regulated: a student ought I think to demonstrate that he or she wishes to work with Professor X, and Professor X should be able and willing to take the student.

Finally, and with a certain amount of trepidation, I suggest that a pilot study be run to try and assess research quality. I don't think it's impossible. For starters, faculty who take a sabbatical in order to spend one year of concentrated research might be asked to present the work of their year to rigorous impartial referees. I think that I said similar things when I was still in the academic world.

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